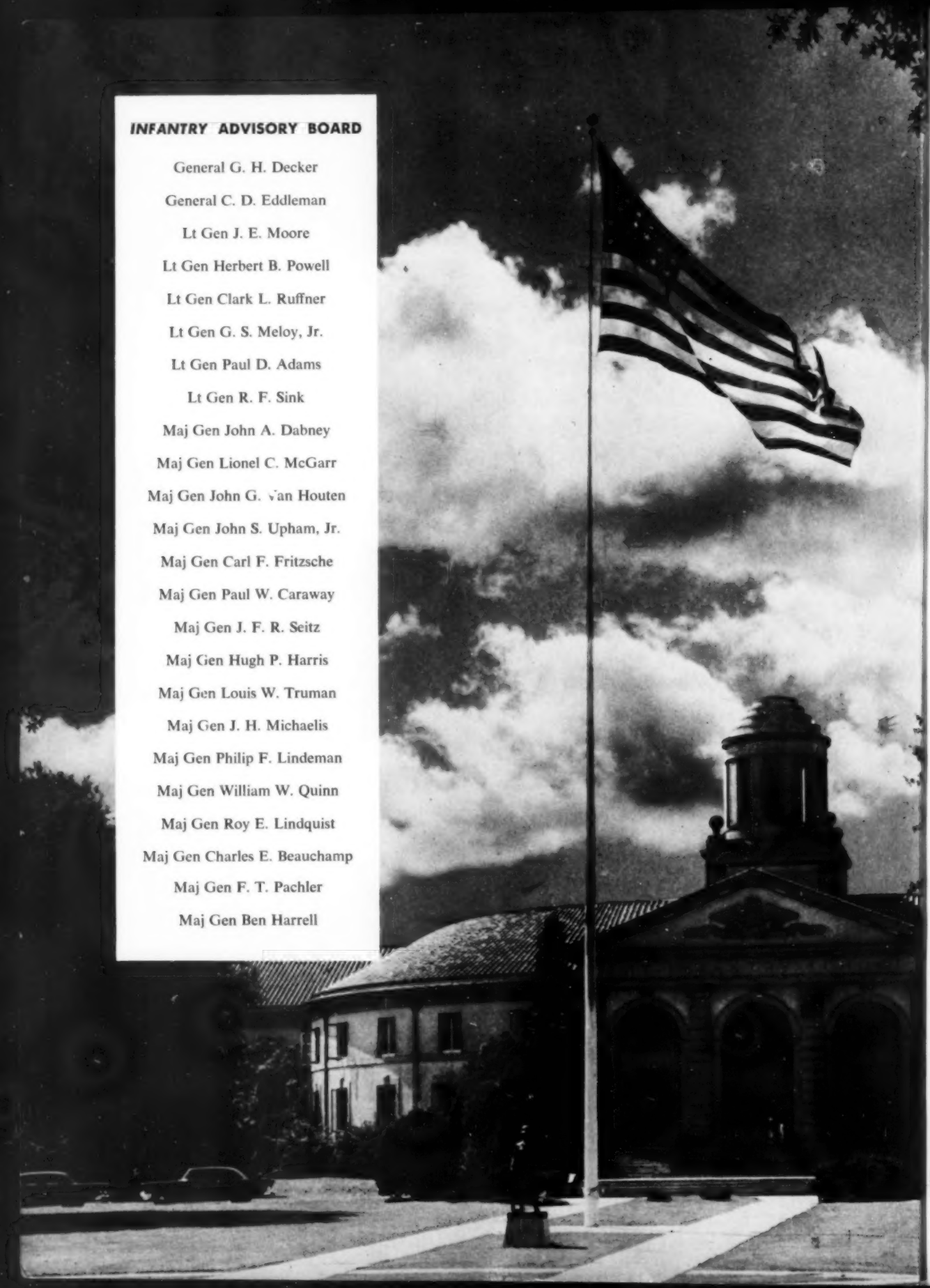
INFANTRY

The Professional Journal for Infantrymen

JANUARY 1960

FOR REFERENCE
Do Not Take From This Room

Battle Group Aviation, page 4



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THE COVER

Air mobility, the theme of this month's cover, can get troops into terrain impenetrable by any other means. And it can do so with more swiftness than ground vehicles allow in *any* terrain. But in the final analysis, air mobility is not just a function of equipment, but also of men trained to work with that equipment.

INFANTRY

The Professional Journal for Infantrymen

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Infantry's mission—As an official publication of the United States Army Infantry School, *Infantry* magazine has the mission of providing current doctrinal information on Infantry organization, weapons, equipment, tactics, and techniques. Additionally, Infantry has the mission of providing, through controversial and thought-provoking articles, information on new developments and doctrinal trends, thus serving as a forum for progressive military thinking.

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FROM THE ASSISTANT COMMANDANT

Dear Infantrymen:

HISTORICALLY, Infantry strength has been based, in great part, on a willingness to accept new ideas, to exploit new weapons and to learn new techniques. This progressive adaptability was a characteristic of the Infantry in its first skirmish at Lexington. Since that time, it has, in a sense, become an Infantry tradition to be "untraditional"—to solve new problems in new ways.

But Infantry's receptivity to change is more important now than ever before. The revolutionary technological developments which have been occurring in the last few years—and the frequency of which seems to be increasing geometrically—demand on our part a kind of adaptability which is without parallel. We must quite literally be prepared to question, and perhaps discard, tomorrow what we have persuaded ourselves to accept today. Every new development in weapons and equipment should prompt the Infantryman to say, "How can I improve this?" And problems of organization and tactics which follow in the wake of equipment changes demand a similar forward-looking approach.

The best means of achieving this adaptability is by a vigorous exchange of thought and ideas among Infantrymen. As the changes become more frequent, it is imperative that this exchange be widened and extended. It must come from all Infantry ranks and echelons and from all parts of the world where Infantrymen serve. From the squad leader who finds a better way of handling his men to the division commander who devises a better division organization, there is a place—and in fact, a great need—for positive thought about Infantry problems, and about Infantry's role in the combined arms team.

The Infantry School stands ready to serve as a forum for this exchange. Ideas, comments or requests for information may be sent to me, to the academic departments of the School, or to *Infantry* magazine. The articles and letters you send to *Infantry* will reach all Infantrymen, and will help to develop the community of dynamic thinking that is mandatory today, if we are to ensure our national survival.

Chester A. Dahlen

CHESTER A. DAHLEN
Brigadier General, USA
Assistant Commandant

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THE EDITOR SAYS

One of our principal missions in *Infantry* magazine is to provide a forum for progressive military thinking. We attempt to do this through the publication of controversial and thought-provoking articles. In this issue, for example, we are exploring the controversial question of organic aviation in the battle group (see "Organic Aviation in the Battle Group—We Can't Afford to Wait"). While some readers may not agree fully with all of the statements in this article, we feel that they will at least agree that the discussion of this question is timely and vital to all Infantrymen. It is timely and vital because we are literally at the crossroads where an answer to the question must be given. As the title says, "—We Can't Afford to Wait."

Another important mission of *Infantry* is to provide the latest information on tactics, organization, weapons and equipment. In this issue, as an example, we have articles on the GOER and the Claymore, which are two new developments of interest to all Infantrymen. By continuing to provide such up-to-date information as this, we hope to keep readers fully abreast of new developments and doctrinal trends.

While we try to provide articles of general interest to all Infantrymen, we may sometimes miss the mark. So if you have some feature or some item which you would like to see in *Infantry*, let us know. Additionally, if you would care to take a shot at writing for *Infantry*, we would enjoy hearing from you.

One final note: if you have any ideas or problems related to Infantry, we at the Infantry School are interested in sharing them. Through such an exchange of information we hope not only to stimulate thought but also to further the best interests of the Infantry.

LETTERS TO THE EDITOR

Armored Infantry

Sir:

As a former Armored Infantryman, I feel there is a definite need for stronger ties between Infantry personnel serving with Armored Rifle units and the Infantry School.

In an Army which is becoming increasingly aware of the possibilities of mobile warfare, the number of Infantry officers and noncommissioned officers assigned to Armored Infantry units is likely to remain large. Yet the Infantryman so assigned may find that he has not been prepared for Armored Rifle duty, although his responsibilities are nearly identical to those of Armor branch personnel who have been specifically trained for this duty.

Of course, the Infantryman can learn on the job, but the service school can do much to prepare him for these assignments. I would recommend that we have additional service school training in Armor logistics, combined arms tactics, communication and equipment maintenance and vehicular maintenance. These are the most critical areas for the Armored Infantrymen.

In many cases, Infantrymen assigned to Armored Infantry may begin to feel that they are not considered "real" Infantry any more. . . . I believe that *Infantry* magazine must show by its editorial emphasis that it certainly does consider the Armored Infantryman a "real" Infantryman. . . .

R. L. HILLMAN
Maj, Infantry
Weapons Department
The Infantry School

All Infantrymen, Armored, Airborne, or otherwise are "real" Infantrymen and we will do all we can to foster that concept. Future issues of Infantry *will contain Armored Infantry material, providing, of course, we can get some Armored Infantryman to send the material in. Major Hillman has been tapped for the first article since he made the original recommendation.*—Editor.

Why Not Sawdust?

Sir:

. . . Why are the bags used on rifle ranges for supported firing positions filled with sand?

Upon completing IOLC at Fort Benning, I was assigned to the 25-meter Trainfire I Committee at Fort Dix. To my surprise, I found a few sand bags filled, not with sand, but with sawdust and wood chips. Not long after my arrival, these were detected and, since

Continued on page 25

Organic Battle Group Aviation

We Can't Afford to Wait

The question of battle group aviation is primarily organizational—who should control it, how and why. *Infantry* presents a definitive position.

AS THINGS now stand, we have given the battle group commander a mission, but we have not given him the tools—at least in the aviation field—to do the job.

Essentially, this is an Infantry dilemma—and a critical one. It is our problem, pure and simple, and one we must resolve.

We are agreed that the battle group has legitimate requirements for integral air support—the kind of support that our Army aircraft provide. At the moment, the real issue is organizational—where the responsibility for control should rest—at division or in the battle group itself. This question is complicated by important considerations of maintenance and supply. Nevertheless, our decision now on organization will, in fact, determine when and if battlefield requirements are met.

Battle group aviation requirements can only be met by helicopters available on a continuing basis. Such aircraft are required for aerial reconnaissance, surveillance and target acquisition (RESTA), for command liaison, for tactical transport and as weapons platforms.

The subject matter of this article has been discussed with the Infantry *Advisory Board. The Board does not necessarily agree with all the views presented, but it considers the article of major importance, and recommends that it be read by all Infantrymen. Views of individual readers are solicited and should be sent to Director, Command and Staff Department, United States Army Infantry School, Fort Benning, Georgia.*

Of course, these requirements are by no means fixed. In the future, tactical transport, for example, will probably be extended so that, as well as supplementing battle group supply, it will be able to lift one reinforced rifle platoon. On balance, this platoon seems to be a strong enough force to give the battle group commander a potent capability, particularly if small-yield nuclear weapons become a reality. Moreover, we are just developing the precise nature of the requirement for an aerial weapons platform capable of delivering suppressive fire and launching antitank missiles.

Actually, as our technology advances, our requirements are likely to multiply. Someone has said that *invention* is the mother of invention —that an initial invention will prompt a host of related ones. Improved aerial vehicles, similarly, will suggest a vast number of employments which at the moment can only be guessed at.

In view of the kind of requirements we can expect in the future, the current needs listed above are moderate and realistic. And since we are discussing current organization, it is perhaps wiser not to appeal to the future to justify the present.

One more thing—to speak of making aircraft organic to the battle group *now* would be futile unless we *now* have enough aircraft capable of meeting the requirements established for them. These aircraft need not be totally or ideally adaptable to the tactical uses we have in mind, and

The battle group's requirement for command and liaison craft is even more apparent in mechanized operations. Flexibility of command is as necessary as flexibility of response.

by Maj Leo D. Turner

we may employ them in full knowledge that industry can provide something much better providing top-level impetus is given now. Nevertheless, aircraft must be available and adequate. The H13 and H23 helicopters are both.

We have in inventory more than enough H13/23s to equip all of our active divisions with the necessary aircraft, based upon an allocation of eight helicopters per battle group. Within the battle group, two of these would be used for RESTA, one for command and liaison, three for resupply and two as weapons platforms. All that is necessary is a decision to redistribute the H13/23 to a battle group organic, tactical role.

We have the resources, therefore, to give the battle group sufficient organic aircraft to perform the required support missions. The lines of the issue are clear. We do not need to theorize.

Helicopters equipped to fire the SS10/11 will provide the battle group with an effective and entirely mobile antitank force. Further development of the aerial weapons platform will undoubtedly result in even more potent firepower for the commander.

The helicopter fits the reconnaissance, surveillance and target acquisition role as no other vehicle can. Its inherent capabilities allow the battle group adequate coverage of vast areas of responsibility and influence.

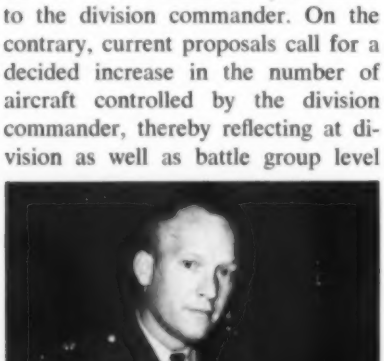
The recon-type helicopter is capable of materially supplementing the logistical lift of the battle group. Even bulky loads can be handled by sling loading. And of course casualties can be removed by helicopter from areas inaccessible to ground vehicles.

We can solve our old problem of fitting our organization to our technology on simple, practical grounds: aircraft pooled at division cannot make as effective a contribution to our combat mission as aircraft organic to the battle group.

When we speak of making aircraft organic to the battle group which they support, we by no means intend to infringe upon division requirements. It is anticipated that assignment of organic aircraft to the battle group will not reduce the number of aircraft immediately available to the division commander. On the contrary, current proposals call for a decided increase in the number of aircraft controlled by the division commander, thereby reflecting at division as well as battle group level the growing emphasis on Infantry air operations. Transport aircraft, fire-support aircraft, command and liaison aircraft, reconnaissance aircraft —they all have division-level functions. But aircraft which perform the same functions *for* the battle group must be based *in* the battle group.

Undeniably, aircraft are easier to maintain and supply at division. The real question here is whether we want our aircraft *perfectly* maintained and rarely used, or *adequately* maintained and very widely used. We should not allow the difficulties of maintenance and supply—and they do exist—to distract us from the purpose of our aviation effort. The purpose, after all, is not logistical ease but combat effectiveness. If battle group aviation places logistical and repair burdens upon the tactical commander, he may welcome them provided that, in turn, he obtains more responsive air support.

It is well to remember that battle group maintenance problems are essentially the same kind faced by division. Too many times, the descent of maintenance responsibilities into the battle group is assumed to have some obscure influence upon the nature of those responsibilities—they suddenly become more complex, they tend to require more skills and take more time. But the fact is that the first and second echelon maintenance which would be performed by the battle group on organic H13/23s is largely a matter of "tool kit" repair. No large pieces of equipment or shop vans are required by the H13/23



Maj Leo D. Turner, who received an OCS commission in 1945, served until 1948 in Headquarters, European Command. He was then assigned to the 504th Airborne and later attended the Advanced Course at the Infantry School. In 1952 he was in Korea with the 7th Infantry Division. He later served with the 82d Airborne Division and subsequently attended the Army Aviation School at Fort Rucker. In 1957 he graduated from the USACGSC. Major Turner is now with the USAIS Command and Staff Department.

H13/23 helicopters now in inventory can lift 500-pound loads such as the 106mm rifle to any point in a battle group's area. Improved engines available today can double this load capacity as evidenced by this lift of a 900-pound Mule.

mechanic. As far as time is concerned, the four hours of organizational maintenance for every hour the H13/23 flies add up to 240 minutes wherever the maintenance is performed. While an analysis of the division aviation company TOE indicates 1.3 men are required to maintain one H13/23 (for 60 percent availability), it must be remembered that this is *not* an unacceptable maintenance load for the battle group.

It is probable, in any case, that the maintenance load will be progressively reduced. This is indicated in the initial reports on the new YH02U reconnaissance helicopter, which reveal a maintenance-time to flying-time ratio of one to one. While the test conditions under which this equivalence was established may make it unrepresentative, there is little doubt that maintenance of future helicopters under standard conditions will require much less time than H13/23 maintenance.

A relatively heavy maintenance load is a disadvantage at all levels, but for the battle group commander it is a *tolerable* disadvantage. So great are his returns in aircraft availability, that they entirely compensate for maintenance problems. And particularly when maintenance loads become relatively light all around, there will be less justification than ever for division maintenance of the aircraft employed by the battle group.

The supply load, like the maintenance load, exists wherever the aircraft are located. Its impact upon the battle group is negligible. The few spare parts and tool sets required can be carried with the mechanics on existing logistical transport. Fuel—six hundred gallons of aviation gasoline—can be supplied from a compartmented 1200-gallon tanker. That much aviation fuel is sufficient to fill the tanks of 15 helicopters, and the "extra" compartment of the tanker may be used for other battle group Class III requirements.

Indeed, the supply-maintenance problem extends to the battle group one way or another. Whether the aircraft which fly for the battle group are in support or organic, the battle group commander still has the practical responsibility for maintenance and resupply. The important difference is that maintenance and resupply of organic aircraft may be regularized and integrated into normal unit procedures, whereas maintenance and resupply of aircraft in support must inevitably retain something of a field-expedient quality, which contributes neither to efficiency nor to safety.

While maintenance and supply are not prohibitive considerations, there is also a question of utilization. It is manifest that the battle group has a reasonably constant need for the eight aircraft we propose to give it. Organic aircraft can best meet this need. Pooling at division is a legitimate means of sharing aircraft among units having *periodic* demands for them. But when such units have *continuing* demands, then pooling at higher echelons is plainly inefficient. The battle group cannot, of course, share something it consistently needs. Since, as a normal course, the battle group is not asked to share its ground vehicles, it should not, as a normal course, be asked to share its air vehicles. Thus, we are at the same point now with reference to air vehicles as we were 30 years ago, with reference to ground vehicles.

Full utilization of battle group aircraft can be expected, first, because the practical distinction between reserve and committed elements of the division has largely disappeared on the modern battlefield and, second, because the responsibilities of the battle group have become so vast.

Recon-type helicopters of simplified design such as this YHO2U need far less maintenance than current models and promise much for the future.

In the past, there was generally a solid front and ample reaction time, and the reserve did not necessarily need all of its normal combat capability. Now, however, the concept of a reserve as a formally uncommitted element is largely academic. In fact, the "reserve" is no longer in reserve. On the fluid battlefield, every battle group must maintain a committed posture, regardless of whether it is nominally committed or not. If a sudden penetration occurs, battle group aircraft must be on the spot and ready to go. And if the reserve is required—as it will be in many situations—to perform anti-guerrilla, anti-airborne, rear-area security or other critical missions, it must have the same immediate capability. Clearly, even in a so-called "reserve" situation, the battle group has the same sustained need as the "committed" battle group.

When the battle group is committed, the problem will be how to get along with only eight aircraft, not how to utilize them. Under normal conditions, the battle group must be able to defend 48 square kilometers. In the attack, frontages of 15 kilometers will be commonplace. Of course, the battle group's sphere of influence could extend far beyond this. Obviously, frontages and depths have been so extended that the air capability is essential. It represents the only means of performing the broad reconnaissance, for instance, that a broad area of responsibility demands. It is the only capability that allows the battle group commander to move critical supplies or personnel with a swiftness equal to the swiftly developing tactical situation.

While control of organic aircraft is a consideration, we must remember that we have tackled and solved innumerable problems of control which are as complicated as this one, or more complicated. Consider, for example, the kind of coordination involved in the use of nuclear weapons. What we are worrying about at the moment is the control of eight small helicopters per battle group and, viewed in perspective, that problem becomes less troubling.

If these are battle group aircraft, let them fly only within the battle group area of responsibility. Right away we have imposed an automatic control on these aircraft. Should the need arise to leave the battle group area, division clearance may be obtained.

As far as specific control within the battle group area is concerned, the battle group aviation officer, in conjunction with the fire support coordinator, can provide all the specific guidance that is required. Control of air space is, after all, not a new responsibility for the battle group. Certain of the weapons now available to the battle group are effective against some kinds of aircraft, and when such new weapons as the Red Eye become commonplace in the battle group, the ground commander will have a major responsibility for the air space above him. As this responsibility increases, battle group control of friendly aircraft operating in battle group airspace will become a vital necessity.

The nature of the future battlefield, nuclear or not, all but demands that aircraft used by the battle group be based in the battle group. We have been engaged in a general reorganization which was intended to create out of our large, dependent units a number of smaller, relatively independent ones. This independence is necessary because communication, supply, control and administration are likely to be seriously interrupted by nuclear weapons, and each unit must therefore be prepared to fight as a self-sufficient entity. To make this independence a battlefield reality, equipment must be kept as close to the user as possible, aircraft included.

Additionally, nuclear warfare compels dispersion, and if aircraft are dispersed throughout the division area —including the battle group areas— it seems almost academic to discuss the propriety of placing aircraft in the battle groups. Since we can expect an eventual increase in the number of aircraft in the division, this logically would require, for reasons of security and dispersion, placement of many of the aircraft in the battle group area. If this is to be an eventuality, why not prepare for it now? Further, since they are to be in the battle group area, why not make the battle group commander fully responsible for them? After all, what we will be doing is simply giving organizational recognition to an accomplished fact.

Thus far we have generally refrained from appealing to the future to justify the present. It is, of course, entirely legitimate to take the future into account, particularly when we can stay on the safer ground of clear trends and influences, rather than hoped-for specifics.

We admit that we need aircraft better adapted to tactical service, and we admit also that we have to further develop the doctrine of employment. Actually, organic aircraft in the battle group would greatly prompt both kinds of improvement. On the one hand, aircraft design could not help being affected by the experience of hour-by-hour support of the battle group. And doctrine, as well, would be developed and perfected as the possibilities of ultra-close support of the battle group revealed themselves. Organic aircraft in the battle group would therefore be a powerful influence in the direction of excellence of design and doctrine.

When the specific employment of the eight aircraft we propose to give the battle group is considered, the advantages of organic air become vivid and convincing. The two RESTA helicopters would work with the reconnaissance platoon (or, if necessary, with mechanized Infantry performing similar functions). But, when advisable, they could also be attached to other battle group elements to provide a surveillance capability that would cover the gaps and give the ground commander the overall picture which ground surveillance alone can no longer provide.

The one command and liaison aircraft would allow the battle group commander to exercise the control demanded by a fast-moving nuclear situation. Flexibility of command is as necessary as flexibility of response, and organic aviation is one of the best means of providing both.

Three H13/23s would significantly supplement the battle group resupply system when road nets are inadequate or certain items are in critical demand. They can carry ammunition, medical supplies, casualties and replacement weapons—500 pounds of payload using a sling. They can give battle group resupply a valuable element of adaptability and speed. To facilitate aircraft maintenance and supply, and to permit interchangeability, it is important that all aircraft organic to the battle group be of one type. Though the H13/23 cannot be employed as a troop transport, it is the only aircraft now available that has multiple capabilities and that still can "live" with the battle group. The troop-transport function, as such, will have to await the availability in numbers of new turbine-powered, small-silhouette, simplified, tactical-utility, VTOL-type aircraft designed basically for battle group employment. This type of aircraft is on the horizon. The HU1 is a start in this direction.

The HU1A utility helicopter is an example of the type of turbine-powered, simplified, low-silhouette VTOL aircraft which can perform a troop transport function and still "live" with the battle group.

The two aircraft employed as weapons platforms would be equipped to fire the antitank guided missiles, such as the SS10/11. Quick attach-detach weapons kits, containing machineguns and aerial rockets, would convert more of the eight organic helicopters to a firepower function, if necessary. Actually, the employment of helicopters in the antitank and aerial suppressive roles is just being developed and startling advances will no doubt be made. Even now, however, two SS10-equipped H13/23s would provide an effective and entirely mobile antitank force which would contribute materially to the firepower of the battle group. They would, of course, operate as a part of the assault weapon platoon.

In adding all of this up, it is evident that organic air is immediately responsive. It has an identity with its unit and knows SOPs and particular modes of operation. It keeps abreast of the developing tactical situation. Because it is responsible to the unit, it is more likely to extend itself for the unit's sake. It has a stake in the battle group, just as the battle group has a stake in organic aviation support.

Already, some divisions find it impossible to remain within the present organizational framework—when division elements are widely separated, aircraft are permanently attached to the battle groups. Even now, the sole reconnaissance helicopter which the battle group may call upon division to provide is clearly inadequate for battle group needs. Soon the aerial vehicle will give the possibility of air mobility to every rifle squad.

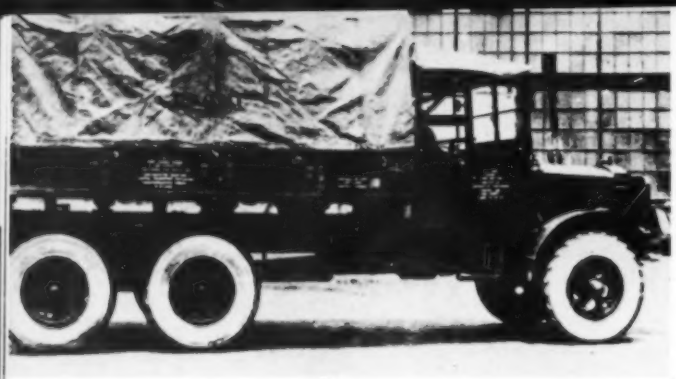
Yet we have not reconciled our organization with our technology.

And technology is useless unless it is applied. Moreover, unless it is exercised, technology will falter and finally fall back. To improve our technology, we must use it. We must anticipate trends and implement possibilities. Organic air for the battle group is one more step on a long path of development. Either we take that step freely, when peacetime allows us efficiencies and inefficiencies alike, or we shall take it under duress, when the necessities of war demand it.

The difference, of course, is that now we can take the step safely and deliberately, while later we can only take it in haste and for a price.

This price we cannot—and should not—pay.

THE G



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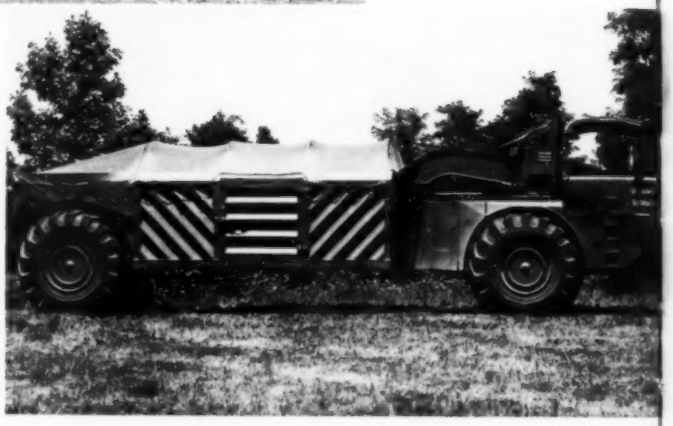


196?

SLOW EVOLUTION and improvement —not revolution—have characterized the development of cargo vehicles for our Army during the last thirty years. No major breakthroughs or startling design innovations have marked this era. The same type of basic frame has supported a cargo bed, an engine and a transmission. Drive shafts have been coupled to universal joints in driving axles, and axles are still suspended under and secured to the vehicle's frame by leaf or coil springs.

It is true that many component improvements have been made—more efficient, higher-horsepower engines, better electrical systems, axles which transmit more power, better tires, improved air brakes and automatic transmissions. But the basic cargo vehicle design has remained the same. And the "fractionalized" improvements that have been made have sometimes resulted in disproportionate increases in cost, complexity and maintenance and logistical problems. What added performance and mobility we have achieved have carried with them a multitude of spare parts and a large dose of technical complication.

Moreover, a vastly important factor—the ratio of vehicle payload to curb weight — has remained unchanged. The relation between curb weight (the weight of the empty vehicle) and payload is, of course, all-important. The lower the ratio between them, the greater the efficiency, since the ideal is to produce a vehicle that will carry as much as or more than its own weight. The 2½-ton truck which was the workhorse of World War II had a curb weight of 11,250 pounds and an off-road rated payload of 5000 pounds. Its payload was less than half the dead weight of the empty truck, so that the payload to curb-weight ratio was only 1:2.25. Today's 2½-ton truck weighs 12;330

EGOERS ARE COMING

In 1923—a 5-ton truck.

In 1959—a newer model of the same truck.

But in 196?—a revolutionary cargo vehicle.

by Maj T. E. Terry

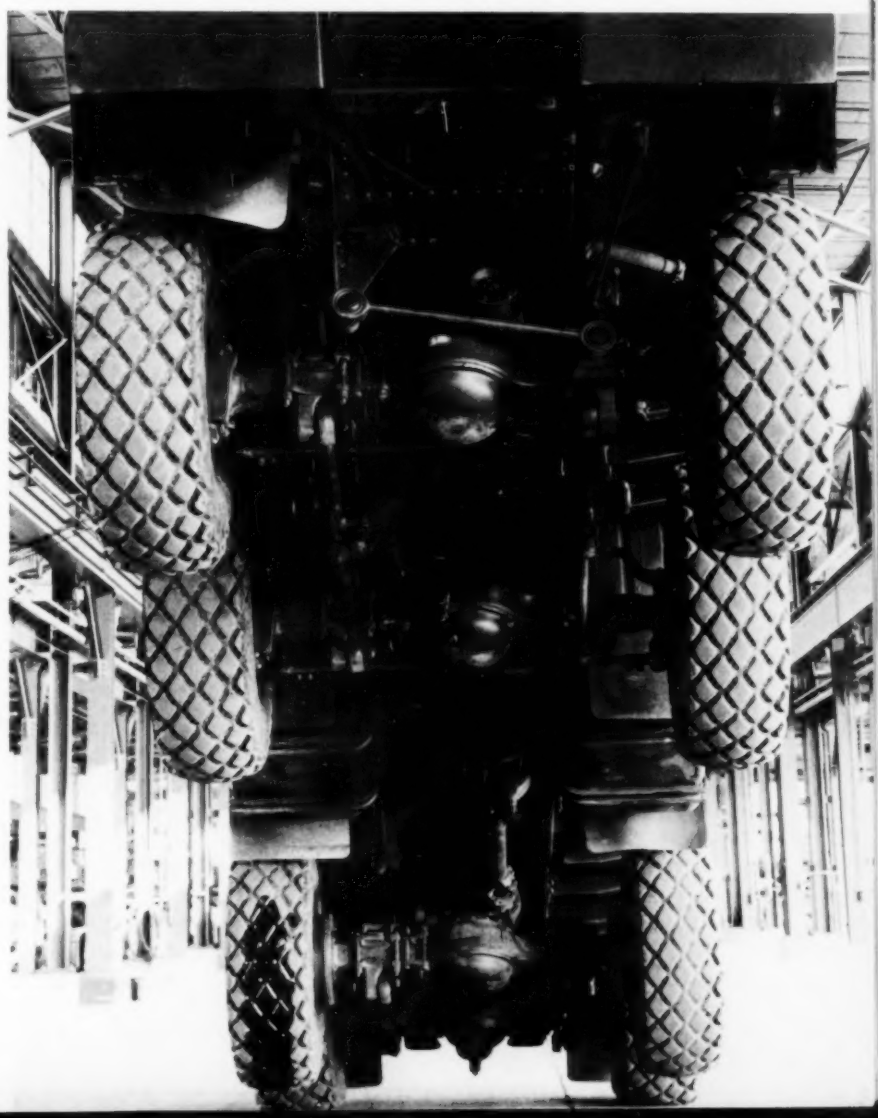
pounds, and the payload has not been increased. Whatever improvements we have made, we have not made the major one of increasing the load efficiency of the deuce-and-a-half, our standard cargo-carrying vehicle.

The problem of finding a significantly better cargo vehicle is, of course, of vital interest to every Infantry commander, from squad leader on up. No leader, regardless of how well trained or equipped his troops may be, can effectively fight his unit in sustained combat unless the tonnages of ammunition, POL and rations required are available when and where he needs them. The "fustest with the mostest" principle still applies, and trucks of conventional design just won't do the job.

To remedy this problem, the Army is borrowing know-how and design from the commercial heavy-equipment industry. Two far-seeing officers from the U. S. Army Armor Board, Col J. J. Wilson and Lt Col Gregg L. McKee, started this project on its way. The encouraging result is a new kind of military transport vehicle — the GOER.

The term GOER is applied to a class of vehicles which have large-diameter, low-pressure tires; a short, rugged power train; exoskeletal (completely enclosed) body construction; positive-power wagon steer (basically like the steering system of a child's wagon, in which the two front wheels turn as a unit); and a payload to curb-weight ratio of 1:1. The combination of these advantages means an emphatic step forward in military transportation.

The large, six-foot diameter, low-pressure tires (15 to 20 psi) put longer and wider "footprints" on the ground and provide two important characteristics of off-road mobility—



This complex and cluttered conventional undercarriage is in extreme contrast to the clean, smooth-bellied GOER.

The GOER readily negotiates inland waterways without special waterproofing. In-water locomotion is provided by the large tires.

GOER's smooth underbelly, wide tread tires and positive-power wagon-steer prevent bogging down.

high clearance and increased traction. The tire height keeps the underbelly of the vehicle well away from the ground and tire width insures that the vehicle will "float over" types of ground that would bog down conventional wheeled vehicles. In addition, these king-size tires have decreased rolling resistance and can cross deeper ditches and climb higher obstacles.

The tires also make a dramatic contribution to simplicity. They completely eliminate the requirement for complex suspension systems, since the tires themselves, being flexible and "spongy," act as their own shock absorbers. In addition, because of their excellent traction, they eliminate the need for more than four wheels, and, of course, the complexity which goes with six-wheel or eight-wheel design. These low-pressure tires have a longer life than their small, high-pressure counterparts. They make fewer revolutions over a given distance, run cooler and are more puncture resistant.

The short, rugged power train eliminates the long articulating drive-shaft with universal and slip joints and additional differentials at each power-axle which now characterize our wheeled transport. Thus engine components are reduced and greater reliability results.

Unlike the conventional truck, the GOER is built like a ship—all its mechanical components are mounted inboard, and exterior surfaces, including the critical underbelly, are smooth. As a result of this exoskeletal construction, the need for engine waterproofing has been eliminated, and the

MAJOR THOMAS E. TERRY is an ROTC honor graduate of the University of Oregon. After service with the 10th Mountain Division in Italy during World War II, he became a ski and rock climbing instructor for the Mountain and Cold Weather Training Command. In 1947, he was officer-in-charge of the Cold Weather Training Detachment for the 505th Battalion Combat Team. A year later he joined the Arctic Indoctrination School as operations officer and deputy assistant commandant. He graduated from the USAIS Advanced Course in 1951, serving then as project officer for cold weather clothing and equipment with USCONARC Board Number 3. Major Terry attended CGSC and later was liaison officer for Neutral Nations Inspection Team 4 in Korea. He now is project officer for tracked and wheeled vehicles in the Materiel Section of the Infantry School's Combat Developments Office.

GOER has less dead weight and more structural strength. Moreover, it is inherently floatable.

The positive-power wagon-steer enables the GOER to turn around in its own length. Each of the GOER's four wheels has its own short axle. The two front wheels, however, do not pivot upon the ends of their axles. Instead, an electric motor, driving on a ring gear, rotates the whole front unit of the vehicle independently from the rear unit to any horizontal angle up to 90 degrees in either direction. This makes for a simplified steering mechanism. And the GOER has a phenomenal turning ability.

The mobility payoff of this positive-power wagon-steer set-up is most apparent in mud. The GOER can crab walk through mud, because the wheel on the inside of a turn acts as a pivot point for the advance of the outside wheel. In this way, one wheel acts as a lever to push the opposite wheel forward.

The GOER is also more efficient—and thus considerably more economical—than our standard wheeled vehicles. It can transport a payload as heavy as it is. One 15-ton GOER can carry the load now moved by six 2½-ton trucks—and the GOER gross weight is 64,000 pounds, as compared to a combined deuce-and-a-half gross weight of 103,980 pounds.

These, then, are the GOER characteristics. It is obvious that they represent a radical improvement in ground mobility.

So far, requirements for two GOER-type vehicles, one of 8- and the other of 16-ton payload, have been established. Military characteristics for these vehicles have been submitted by USCONARC to the Department of the Army, with the recommendation that development await evaluation of four GOER test-bed vehicles. These test-bed vehicles —one cargo truck and three tank trucks—were fabricated from components of commercial earth-moving equipment. The evaluation by the Armor and Arctic Test Boards, and by the Armor, Artillery and Infantry Schools, has recently been completed and is now undergoing review.

Wagon-steer is clearly demonstrated as this tanker GOER makes a 90° turn.

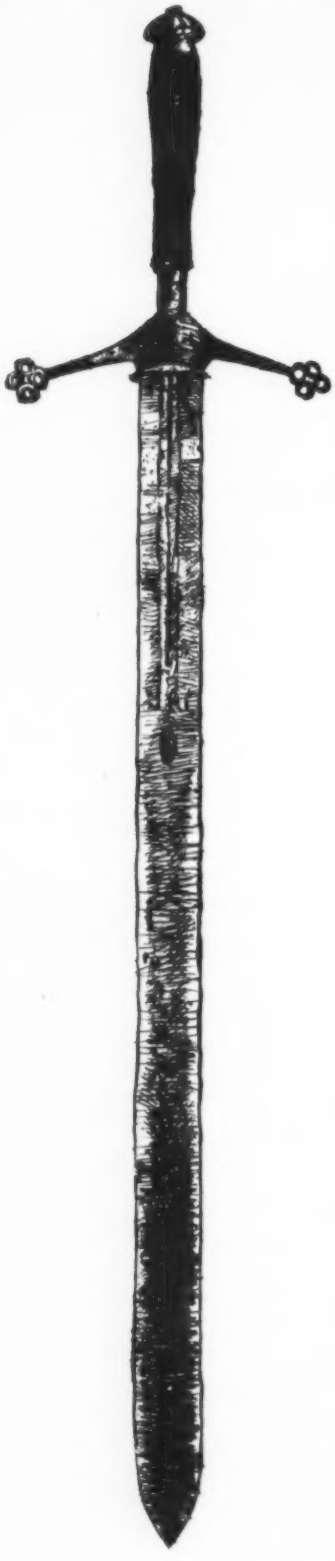
The complex power train of the present 2½-ton truck, above, is eliminated by the simple GOER components, below.

In September, 1959, two hundred and fifty military and civilian observers gathered at Fort Knox to see the U. S. Army Armor Board put test-bed GOERs through their paces. They crossed a series of sandy hogbacks, traversed a mud lane 30 inches deep, swam inland waterways—and won a tug of war with the 10-ton truck, which has slightly more horsepower and about the same gross weight as the GOER.

This performance gave dramatic proof that something really new in military logistic vehicles can soon be ours. Indeed, the GOERs are coming!

The opinions expressed in this article are those of the author and do not necessarily reflect official thinking of the Infantry School.

by Capt George L. Robson, Jr.



CLAYMORE

The Claymore antipersonnel weapons put large-scale firepower into the hands of every soldier. They are light in weight, simple in operation and devastating in effect.

CLAYMORE—the ancient two-edged sword of the fighting Scottish Highlanders—is the name given to our new family of directional fragmentation weapons.

The first of the modern Claymores to be produced in large quantities is the M18 Antipersonnel Weapon. It is designed to provide a simple means of destroying a large mass of attackers. Lightweight and versatile, it can be installed and fired by the individual soldier.

The M18 Claymore is a one-shot weapon which delivers a devastating shower of steel fragments in a fan-shaped beaten zone 2 meters high, 30 meters wide and 30 meters long. All this power comes from a weapon and firing system weighing about three pounds and carried in a two-pocket bandoleer. And the M18 is no delicate gadget. Even when exposed to rough handling and weather, it's as reliable as a can-opener.

The Claymore is harmless enough in appearance. Installed, the firing unit sits on three folding legs and looks very much like a miniature radar antenna. The unit is roughly rectangular in shape, 23 centimeters wide by 9 centimeters high, and is covered with coarse green cloth. A pair of wires 15 meters long leads from the electric blasting cap in the side of the firing unit to the source of electricity at the firing position. This power source—two flashlight batteries—is contained in a device called, naturally enough, a battery holder. The firing switch itself, which is similar to the switch on any flashlight, is mounted on the side of the battery holder. With the exception of the two batteries, all the Claymore components are contained in the bandoleer.

Employment of the M18 is largely a matter of imaginative adaptation. The general rule is to make full use of the weapon's tremendous firepower. Once the effects of the weapon are understood, the Infantryman can apply a simple sequence of actions to install, arm and fire the M18.

First of all, he will *pick a good position for the firing unit*. The weapon should cover the best route of approach to his foxhole. Since the Claymore has a dangerous back-blast effect to the rear and sides, the firing unit should be emplaced about as far from his position as the firing wire will stretch (approximately 20 paces). The field of fire to the front of the M18 should be fairly level so the assaulting enemy will not be sheltered by folds in the ground.

Then the soldier will *puncture the*

The normal tendency for the untrained soldier is to put his eye up against the Claymore sight slit. The correct procedure, however, and the only means of obtaining precise alignment, is to aim the Claymore at arm's length.

sealing tape covering one of the firing unit's two cap wells and hollow out a cavity in the soft plastic explosive. He can do this with a pencil or stick. He will carefully *remove the electric blasting cap from its cardboard tube,* making sure that the ends of the two strands of the cap's firing wire are joined in a small metal tube (called a "shunt"). If the ends are loose, he will twist them together to create an electrical short circuit. This done, he will gently *push the electric blasting cap into the well* he has hollowed out. The cap should be pushed in until all the bright metal is covered.

He will then *unfold the legs of the firing unit, set it on the ground and direct it generally toward the center of the target area.* The arrow on the top of the M18 should point at the target location. He will get down in the prone position and check the field of fire. Nothing more substantial than grass and brush should be between the M18 and the target area.

To sight the weapon more precisely, he will *drive an aiming stake at a distance of 40 paces in front of the weapon and tie a white object to the stake at knee level.* With the Claymore an arm's length away from him the soldier will, employing the sight on the top of the weapon, *make minor adjustments in the aim of the weapon (primarily to correct for elevation) until the white object is centered in the sight slit.* Some of the earlier Claymores were manufactured without a sight. In this case, the cardboard tube in which the blasting cap is packed may be employed as a sight, simply by balancing it on top of the weapon and looking through it at arm's length. The stake is removed when it has fulfilled its function.

He will *remove all sticks, stones, pebbles and other potential secondary missiles from within an area one meter to the rear and sides of the firing unit.* If this is impossible, he must lie prone, shielding his face, neck and eyes, when he detonates the weapon. He will *camouflage the front of the firing unit* with leaves, grass and other lightweight materials.

He will *unfold the firing wire attached to the electric blasting cap, and tie the far end to a stake or other support* at the edge of his foxhole. He will then *insert two flashlight batteries in the battery holder,* making sure that the tops of the batteries face the two electrical contacts on the top of the holder. He will *remove the shunt from the far ends of the firing wire and clean the tips of both wires* so that they will make good connections. After checking the firing switch to make sure it is in the OFF position, he will *attach the strands of the firing wire to the contacts on the battery holder.* He will save the protective packing material and the bandoleer, so that he may disarm the weapon, carry it to a new location and set it up again, should circumstances dictate.

CAPT GEORGE L. ROBSON, JR., was graduated from the United States Military Academy and served in Korea as a platoon leader and company commander with the 15th Infantry. He then attended the USAIS Advanced Course. He became an instructor at USAIS and is now chairman of the Mine Warfare Subcommittee of the Special Warfare Committee of the School's Weapons Department.

The Claymore bandoleer contains the weapon itself, the battery holder, and 15-meter wires and electric blasting cap. Flashlight batteries are supplied separately.

To fire the weapon, he will *wait until the mass of the assaulting enemy is less than 30 paces in front of it and flick the switch* on the battery holder from OFF to ON. The Claymore will disappear and so will the enemy.

The Claymore is now a standard item of ammunition and is issued as the "M18 (T48) Antipersonnel Mine." It is technically a mine because the weapon comes under that broad definition. Tactically, however, the Claymore is an individual weapon similar to the hand grenade, and for this reason USCONARC has directed that Claymore be referred to as a "weapon."

The M18's versatility is obvious. The employment described above is probably fairly typical. There are, however, many other more specialized methods of employment. Two cloth flaps with eyelets project from the sides of the firing unit and may be used for tying the Claymore to trees, buildings and similar objects. Among other things, this procedure eliminates the "masking" effect of uneven ground by directing the Claymore fragmentation down into the depressions. It may also adapt the M18 to terrain which will not permit the use of tripod legs for emplacement, and solve certain camouflage problems. It does, however, produce quantities of secondary missiles. Consequently, precautions must be taken against this hazard if the M18 is used in this way.

With training in demolitions and a little ingenuity, the soldier can use communication wire to tie a large number of M18s into a master switchboard located at an observation post. He can then explode his Claymores one at a time at the exact moment they will do the most good. The long firing wires, however, are vulnerable to artillery fire and the operation of the whole system depends on one man, the firer; this puts all the Claymore eggs in one basket, so to speak.

M18s may be rigged for nonelectric demolition when for some reason the electric system is not operating or when the M18 is used as a booby trap or improvised mine. Nonelectric demolition training, and the rules for land mine warfare (FM 20-32) must be scrupulously observed.

Since there are two cap wells in the firing unit, two separate firing systems may be installed in the same firing unit. For example, the regular electric firing system can be installed in one side of the Claymore, and a victim-actuated nonelectric system in the other. Or two electric systems may be installed to give two soldiers control over demolition.

The Claymore makes friends all around. Supply people like the M18 because it is light and is issued with all its components (except the batteries) in one package. The soldier likes it because it gives him a fighting chance against a mass attack. The leader welcomes the Claymore because he can control its fire in the same manner as the fires of the other individual weapons.

Most weapons which have been introduced in the past few years have created problems. Almost without exception, the Claymore does nothing but solve them.

STEPS IN USING THE CLAYMORE

1. Pick a good position.
2. Hollow out cap well.
3. Remove the electric blasting cap from its tube and place the cap in the well.
4. Unfold the legs of the firing unit, set it on the ground and point it toward the target.
5. Drive an aiming stake at a distance of 40 paces from the weapon and tie a white object to the stake at knee level.
6. Center the white object in the sight slit.
7. Clear an area one meter to rear and sides of the firing unit.
8. Unfold the firing wire and secure it to a stake near the foxhole.
9. Insert batteries in battery holder.
10. Remove shunt from far ends of firing wire.
11. Attach firing wire to contacts on battery holder.
12. Wait until enemy is less than 30 paces away before firing.

THE OLD ARMY MESS

A whimsical glance at the old Army institution 40 years ago

by Sp4 Christopher Gebhardt Trump

THE HORSE marines and the zouaves have disappeared; so have the live bugler and the regiment. Pentomic concepts, mechanization, extreme mobility—these are the glittering highlights of current military planning. More mundane, and hence less touted, are the changes in the mess. These have come quietly and progressively. The full dimensions of the evolution are scarcely discernable unless one turns back several years, say to the World War I Army.

The abridged *Manual for Army Cooks,* issued by the War Department in July 1917, is a treasure trove of memorabilia. Many of the terms are quaint, e.g., mobilization centers are referred to as "concentration camps." Some of the statements are presumptuous, as when the cook is advised that if he takes pains with the sauce for his pudding, "it is well liked"; others are naive, like this remark about issue dried fruit: "The men tire of them when they are prepared as stews too often." Elsewhere it offers dire predictions: "The careless cook may, through neglect, cause stomach trouble in warm weather." In this tone, then, the little book rambles on its officious way, beginning with the principles of mess management.

Years ago, the mess sergeant was bound to consider every mouth he fed in terms of rations, and again in terms of dollars and cents. Not too different from today's system, except that in the old days—though they played for marbles—the danger of debt was always a looming possibility. " . . . thus it happens that the mess sergeant frequently feeds the company bountifully one month and scantily the next." Here there was no weeks-in-advance menu planning—the mess was organized on a daily cash basis. Rations were computed from the current manpower as indicated by the morning report. The mess sergeant, therefore, had to be quite a mathematician in theory, and in practice, it may be presumed, a numerical juggler.

The rations were sparse—no doubt healthful, but nevertheless sparse. Fresh pork was not supplied by the Quartermaster (in those woolly days, however, the mess sergeant was al-

"Bakers should regulate the length of fermentation . . ."

ways free to develop local sources of supply). Beef was characterized in the manual as the "most important . . . most expensive article of the ration, [its] value equal to all other components combined . . . the foundation of the ration." Lengthy instructions were given the cooks as to how to prepare the cuts, store the meat (even without refrigeration) and how to put leftovers to maximum use.

Then the ubiquitous bean. This mealy, pulpy globule was the butt of more jokes than all other ration foods put together. And for good reason—the men were swamped with the vegetable. The manual describes beans as good muscle-building material. Therefore, in a 30-day period the average ration for 100 men was listed as 400 lbs, including issue beans, kidney beans, dried peas, lima beans, chili beans, dried corn and hominy. This was considered sufficient for 28 meals. Despite this rather appalling imbalance, the book goes on to say that variety is the spice of life. "The bills of fare should vary constantly. For each meal there should be at least one dish that has not been served for some time." Beans, of course, do not lend themselves to disguise or camouflage, so the task of variety usually fell to desserts. The manual advised that these were one of the cheapest menu items and should be served at dinner and *frequently* (not always, as is now the case) for supper. Then, in a paternalistic vein: "The men enjoy them, especially on bean day, when a good plum duff is much relished by those who do not care for beans."

"The careless cook may, through neglect, cause stomach trouble . . ."

As for the other issue vegetables, the ration consisted solely of potatoes, onions and canned tomatoes. However, company gardens and the mess sergeant's ingenuity were encouraged to make up for the variety which the Quartermaster failed to provide.

Bread, though not the basic item of the ration, was certainly the cheapest. The sergeant was directed to make at least a 10 percent saving in the official allowance for flour and bread used in the kitchen. "This saving should be used for the purchase of breakfast foods, for which no allowance is given." Corn flakes were popular even in those days, so the sergeants probably tried to make their saving. As for the baking of bread, the *Army Baker,* published at Fort Riley in 1910, offers this advice: "Bakers should regulate the length of fermentation in a sponge or straight dough so as to secure the best results and not solely to suit their personal convenience." Bakers were warned not to be careless, as the men would surely resent lumpy or soggy bread. Or again: ". . . the chief baker will be inspected and mustered at the post bakery. He may be excused from ordinary post duties, but will attend target practice."

Logical progression eventually gets the cooks' manual to the subject of beverages. Milk dispensers, or even milk bottles, were unknown. The milk allowance was based on the requirements for coffee only. "If used directly in the coffee," it remarks, "there is sufficient for use twice daily." This generosity did not mean that coffee and tea supplies were limitless. One finds, relative to these staples, this most remarkable paragraph: "The use of coffee and tea to the exclusion of water is a great mistake. The quantity of coffee consumption will be greatly reduced if plenty of cold water is placed on the table where the men can help themselves.

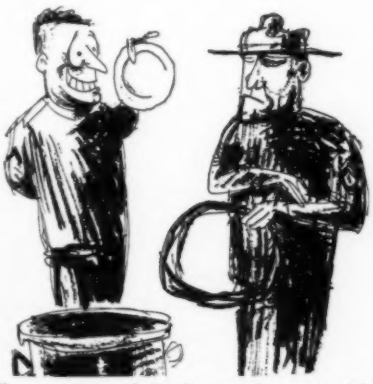
"Food must be properly prepared and delicately seasoned . . ."

SP4 CHRISTOPHER GEBHARDT TRUMP, a Foreign Service graduate of Georgetown University, also attended Hamburg University in Germany. He entered the Army in 1958, and took basic training at Fort Benning. After attending the Army Intelligence School, he received his present assignment as an illustrator with the Army Intelligence Board, Fort Holabird, Maryland.

If good coffee is made the allowance is hardly sufficient [italics mine]. The use of tea, however, decreases the consumption." What have we here? The manual, in effect, is slyly advising the cook to substitute volume for flavor, and further, to keep the coffee below optimum standards to ensure minimum consumption and adequate supply.

The text was only slightly more liberal towards the use of sugar. It granted that it might be best to have the sweetener placed on the table, with the men helping themselves. However, this was only one method, and had to be used with caution, for consumption of sugar would show an increase at first. Under proper supervision it would soon adjust itself, the manual suggests. The type of supervision necessary to reduce sugar consumption is also detailed: ". . . the mess sergeant should take care to see that none is left on the bottom of the cups after the coffee is drunk." Judging by the tenor of these directions, it is likely that the cook's police were kept busy filling up the water jugs.

While on the subject of cooks and cook's police, it is interesting to note the old mess hall had a somewhat more elaborate ritual of meal preparation and serving. Before the meals, the tables would be set with dishes, eating utensils, soup and salad.



". . . waste of food must be met with prompt punishment."

As the men entered the mess hall they were checked for washed hands, clean fingernails and combed hair. The mess sergeant seated the men and the cook's police served them, while the cooks dished out the food in the kitchen. The manual points out that talking other than that strictly necessary should be discouraged.

The most harried man on hand was the dining room orderly, who was detailed for a period of one month. His was the responsibility of keeping the mess hall neat, clean, efficient—and intact. The latter task was not to be treated lightly, and a "strict account is kept by the orderly, in a book provided for the purpose, of all breakage that occurs, and he reports to the mess sergeant the names of

"If good coffee is made, the allowance is hardly sufficient."

the men responsible for the breakage. Upon being relieved, all breakage unaccounted for is charged against him." The duty as orderly, therefore, could very well prove to be an expensive detail for the man appointed. In addition, his task of apprehending dish breakers was made immeasurably more difficult since the orderly's station at mealtime was in the bread room, where he sliced bread for the waiters. He also aided the mess sergeant in seeing that no more bread than could reasonably be eaten was sliced, and that uneaten slices were stored for re-use at the next meal.

If he was not busy checking sugar in the bottom of cups or keeping the men in hand, the mess sergeant's post

"A strict account of breakage is kept by the orderly . . ."

was at the garbage pail. The manual is very specific on this point, stating that the waste from the plates of 100 men should fill no more than one quarter of an ordinary bucket. Although the mode of disciplinary action was not specified, the book points out: ". . . waste of food must be met with prompt punishment. After a few punishments there will be no further trouble."

The manual ends with a short series of "receipts," and also a number of admonitions aimed at the cook. In these, the paucity of the menu is ignored and the brunt of the responsibility for keeping the eaters in a cheerful humor is thrust on the cook himself. In the manual's words: "Food must be properly prepared, delicately seasoned and served hot or cold as desired. Lukewarm, ill-seasoned food is unpalatable and if served in a slovenly manner is most unappetizing. The only cook that should be styled a chef is one who uses the proper proportions in cooking, who delicately seasons his food, and serves it in an appetizing manner."

Up, down and all along the line, the cook was looked upon as the jinni who would make it all right—taste, volume, variety. Now, however, cooks have a liberal variety of supplies, not to mention detailed guidance and complex equipment, yet griping continues. The Army has changed; the soldier has not.

by Capt Guy S. Meloy, III

A Look Back at Lebanon

Lebanon was only the climax.

Behind it lay months of planning and training.

Here is a special report on how the Army prepares for strategic mobility requirements.

THE DECISION to commit U. S. forces in Lebanon in July of 1958 has been the subject of much writing and even more argument. Now that the noise and smoke surrounding the operation have cleared, a careful study of the prior planning and actions can be made. Upon the same sort of planning and actions depend the success of the Army's cold-war missions.

Late Monday evening, 14 July 1958, the 1st Airborne Battle Group, 187th Infantry, returned to home station, Gablingen, Germany, after two intensive weeks of training at the Hohenfels Training Area. The training schedule had been organized on a twenty-four hour day, seven-day week basis, so that when the group closed into the Kaserne that evening, although happy and satisfied with their accomplishments, the men were physically and mentally fatigued and

looking forward to a rest.

Because the 187th was scheduled to move to Bad Tölz on 28 July to act as aggressors against another American Army unit, the deputy group commander and all the company commanders had departed Hohenfels one day earlier to reconnoiter the maneuver area.

After "putting their companies to bed," most of the officers and noncommissioned officers left Gablingen for their quarters in Augsburg, five miles to the south. Company CQs had been instructed that reveille would be held at the usual time the next morning—0600 hours.

The first indication that something was in the wind came at 0130 hours on the 15th when the Group Duty Officer called the company executive officers and informed them there would be a command reveille at 0730 hours that morning—CQs had already been notified. At 0530 hours, however, the alert notification plan went into effect and all personnel were notified that there would be a 100 percent muster at 0630. Although this was not a normal thing, there was little speculation since musters in the Seventh Army are a common occurrence.

At 0630 muster, word came to each company that the 187th was now under Operation ALERT, the plan which prepared the Group for an airborne assault. Company commanders—or in their absence, executive officers—were to report to Group headquarters for briefing. The Group commander conducted the briefing, making it short and to the point: "Gentlemen, this looks like it might be the real thing so act accordingly. The Joint Chiefs have ordered the Sixth Fleet Marines into Lebanon so anything can happen. Move with a sense of urgency but at the same time I don't want you telling your people this might be real until I'm given a positive 'go' signal. Effective right now we're marshalled, so nobody leaves the Kaserne. Put maximum security measures in effect and I don't want to see any more activity than absolutely necessary, particularly while preparing your heavy drop. Send your heavy drop and air-landed loads to the airfield as soon as they're ready. We're trying to contact the deputy and company commanders now, but don't expect to see them soon. Play ALERT to the letter. That's about it . . . thank you."

The foundation for Lebanon was laid in painstaking staff work . . .

The ALERT Plan was a 53-page document which had required many hours of detailed study and practice before each man had become thoroughly familiar with those portions of the plan for which he was responsible. ALERT titles covered everything appropriate to an airborne operation of this type: Task Organization, Organization for Air Movement, Advance Party, Main Body and Follow-Up Echelon; Kaserne Security; Concept of Operations; Marshalling Area Plan and Aircraft Loads Assembly Plan; Movement Plan and Strip Maps to Departure Airfield; Aircraft Allocation Tables and Air Movement Tables; Aircraft Loading Plans and Aerial Delivery Equipment Requirements; Airborne Troop Commander's Plan; Aircraft Parking Plan and Vehicle Loading Procedure; Departure Airfield Control Plan and Radio and Wire Net of Departure Airfield; Drop Zone Assembly and Reorganization Plan, Landing Zone Control Plan and Arrival Airfield Control Plan; Administration and

. . . and high standards of individual preparedness.

Logistics and Individual Clothing and Equipment; and Actions of Commanders and Staff. As for the Ground Tactical Plan—to be announced!

ALERT was a plan that, although thoroughly tested by many unannounced practice alerts, demanded a total team effort. Briefly, the problem facing the 187th was this: with no advance warning, the Group, equipped to jump into combat, was to move to a distant departure airfield to meet a station time 12 hours from the time of the alert. All personnel actions and disposition of personal property and station property had to be completely resolved, for it was very possible that the unit would not return to Germany.

The training and practice were finally paying off and all that was required to "get the show on the road" was for key noncommissioned officers to be called to the company orderly rooms and told simply, "O.K., let's ALERT."

The requirements facing the 187th at this time fell generally into two major areas. The first concerned the individual trooper—ensuring that he was completely prepared, both with regard to equipment and necessary personnel action, for immediate and perhaps permanent movement. The second problem concerned TOE equipment—segregating it into correct loads and, concurrently, inspecting it for completeness and serviceability. Almost everything that could have been accomplished prior to an actual alert had been accomplished. The result was that there was very little work to be done in these areas with the *predicted* exception of minimum processing required for those few individuals who returned to the Group from special duty or temporary duty; and of replacing a few minor items of TA21 and TOE equipment which had become unserviceable during the two-weeks training at Hohenfels.

Shot records were complete . . .

. . . and commanders needed only details of the specific operation ahead . . .

Continuous, concentrated effort had brought each man's inoculation record up to date, to include certain inoculations peculiar to the Middle East. "Just in case, soldier, don't try to G2 it." ID tags and cards had been inspected weekly and Geneva Convention Cards previously prepared and kept in unit safes were available for immediate issue. Last Wills and Testaments, Emergency Allotments and Powers of Attorney were maintained in each man's 201 file by the Personnel Section.

Fiberboard containers on hand in unit supply rooms were issued immediately. Each man packed his personal belongings, filled out a Personal Clothing and Effects Form, printed his stateside address on the box and then carried it to a central point for storage. It would be determined at a later date if these boxes would actually be shipped to CONUS. Private automobiles were driven to a predesignated parking area, then keys and registration papers placed in sealed envelopes and delivered to the S1. B-Bags, containing personal clothing and effects, previously inventoried and stored in a locked room within each platoon area, were now taken to the day room to be brought along by the follow-up echelon. Finally, a showdown inspection of each man's pack was conducted.

TOE equipment and the basic load of ammunition presented a problem, but again, prior planning and practice alerts had worked out the kinks. Essentially, all organic equipment and Class I, III and V basic loads had to be assembled and then segregated into the following types of loads: Parachutist Adjustable Equipment

Bags (GP Bags), Monorail and Door Bundles (A21 Equipment Containers), Heavy Drop, Air Landed and Follow-Up. These loads had to be further segregated by load numbers and aircraft chalk numbers. Since this work had to be completed as soon as possible, it was given first priority. Signs indicating aircraft chalk and serial numbers, and types and numbers of loads, had been prepared previously and were now spotted at pre-planned points in the company areas. The planning and coordination required to accomplish this task becomes apparent from an examination of a rifle company loading plan.

A total of 49 parachutist adjustable equipment (GP) bags were issued for jumping such equipment as the AN/PRC-10 radios, extra batteries, 3.5-inch rocket launcher ammunition, reel equipment and wire dispensers. Eight A21 equipment containers were provided for monorail and door bundles containing TOE equipment, Class I and V. Two of these containers were used for the 81mm mortars and 20 rounds of HE-light ammunition each.

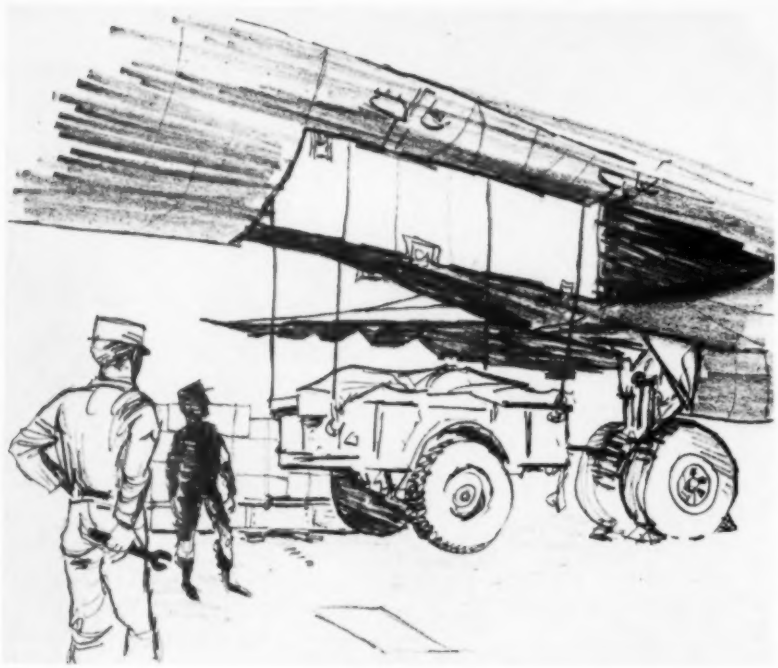
Heavy drop items—gas cans, water cans, crew-served weapons ammunition, and C-rations—were packed in five A22 aerial delivery containers. Three ¼-ton vehicles (company commander's vehicle with AN/GRC-8, and two other vehicles mounting 106mm recoilless rifles) were also rigged for heavy drop. Two chalks were assigned each rifle company for air-landing two ¼-ton vehicles with trailers (one of these jeeps belonged to the 4.2-inch mortar FO), additional gas cans and 3500 pounds of TOE equipment. Fifteen ¼-ton vehicles with trailers, one EML 2½-ton truck and the remaining TOE equipment were left to the follow-up echelon.

. . . before the troops were ready to move.

The loading plan described above was completed by 0930 hours, two and a half hours after the Battle Group commander's initial briefing, and by 1000 hours the heavy drop and air landed loads had departed Gablingen for the airstrip where they would be rigged. Dinner was rescheduled for 1030 hours and by this time the unit was ready to move. Heavy mortar FO teams and medics had reported to their respective units and been briefed; GP bags and A21 equipment containers had been packed, rigged and inspected by jumpmasters; buildings given a final inspection to ensure no equipment had been inadvertently left behind; and pre-typed turn-ins for station property given the NCOIC of the follow-up echelon.

By 1115 hours the troops had finished eating and were relaxing beside their gear. Here and there a man could be seen tightening his pack strap or stowing the lowering line on his GP bag . . . a few officers and NCOs were seen stuffing extra parachutist chin straps into their side

Capt Guy S. Meloy, III, a graduate of the United States Military Academy, has attended the Basic Infantry Officer Course and the Ranger and Airborne course at Fort Benning. In 1954 he joined the 86th Infantry, serving with it at Fort Riley, Kansas, and Schweinfurt, Germany, as company commander, assistant battalion S3 and assistant regimental S3. At the time of the Lebanon operation Captain Meloy was a company executive officer with the 1st Airborne Battle Group of the 187th Infantry. Upon his return to the United States in 1959, he was assigned to the Infantry School's Airborne-Air Mobility Department.



Air-loading proceeded smoothly and surely . . .

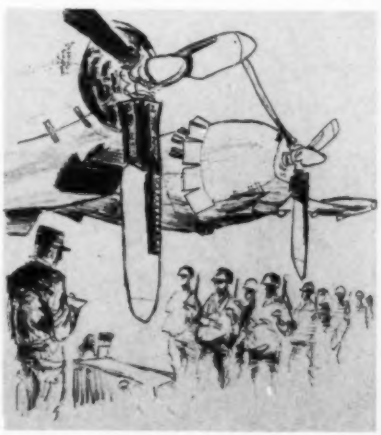
pockets . . . and the PX was fast selling out of cigarettes. "When are we moving out, sir, what's holding up the word?" The officers were asking themselves that same question. As was to be expected, the wives eventually sensed that all was not normal at Gablingen and around noon the telephone calls began . . . "May I speak to so and so?" . . . "Sorry, Ma'am, he's busy right now, any message?" . . . "Yes, what's going on out there, is it true the 187th is leaving?" . . . "No Ma'am, not that I know of. I'll tell your husband you called. Goodbye."

Time dragged on and the troops were beginning to think that perhaps this, too, was just another practice. 1300 hours . . . 1330 . . . 1400; then at 1430 excitement stirred the lounging figures as first sergeants passed the word: "Group just called, sir, meeting at the CP right away!" Platoon sergeants, sixth sense in high gear, formed their platoons for a third or fourth "final" check and at the same time cautioned their people to "settle down, now, the Old Man is probably going to be told to tear it down and put it away, so relax." But for once the "Old Man" was *not* going to be told to "tear it down."

The last briefing at Gablingen, conducted this time by the Group executive officer, was also short and to the point: "O.K., we just got the word to move to the airfield. The Group commander is already down there. Send a runner to MACO (marshalling area control officer) to guide your trucks to your entrucking point. We'll cross the IP at 1530 hours; each company forms one march unit. Order of march is A,B,C, Heavy Mortar, Headquarters, D and E. Guides have already been posted by the 19th (1st Battle Group, 19th Infantry, stationed in Augsburg) and they'll direct you right into your assigned area at the airstrip where you'll find your advance party NCOs. Check in with the departure airfield control people as soon as you close in. Best of luck . . . move out!"

"Let's saddle up, we're moving out," was the only command necessary to shift into high gear. For the first time the months of training and practice were paying full dividends. The firemen finally had a fire and there was no doubt in anyone's mind that the outfit could put it out. Ten minutes after the trucks arrived, troopers, A21 equipment containers and GP bags were loaded and ready to move. A final security briefing to the men already aboard the trucks ("Now there won't be any shouting or waving 'Auf Wiedersehen' to the girls along the way—act like this is just another convoy to Hohenfels") and the companies began moving down the autobahn to the departure airfield. At the halfway-point, the troopers of Charlie Company had the best laugh of the day when they saw the expression of disbelief on their company commander's face as he, returning from Bad Tölz, recognized the familiar faces in the convoy. Two hours later, after having frantically raced about Gablingen gathering up his gear and then having sped back to the airfield in one of the follow-up jeeps, his only comment was a very casual, "Has anything come up I should know about?"

By 1730 hours all companies had arrived at the airstrip and were hurriedly pitching shelter-halves in an attempt to beat the rain which could be seen building up in the west. To protect the equipment containers and parachutes, ponchos were snapped



. . . and the troops standing by their planes were ready.

When the planes took off for Lebanon, the bystander might have assumed the mission was beginning. But that mission—preparedness—has no beginning and no end.

together to serve as tarpaulins. The 1st Battle Group, 21st Infantry, from Munich, was responsible for supporting the 187th and had already set up field kitchens for each company and was installing a double concertina fence around the entire troop area. The heavy drop assembly lines finished a load every few minutes and as soon as a load was completely rigged and inspected it was taken to its assigned aircraft and tied down. Simultaneously, additional aircraft were landing, refueling and taxiing to parking ramps. Shortly after dark, approximately twenty C119s, thirty C130s and five C124s had been assembled on the airstrip. Pilots and navigators were called up for final briefings and the companies received the final loading plan.

The troops climbed into their sleeping bags shortly after dark but anticipation and suspense made sleep difficult. From about 2100 hours until shortly before dawn a blinding thunderstorm drenched everything and everybody. Finally, at 0200 hours on the 16th, the order came to strike tents and standby. Breakfast was at 0300 and soon afterwards D and E Companies, scheduled to load the slower C119s, secured their gear and moved to their assigned aircraft. At 0700 hours the remainder of the 187th moved to the various parking ramps where, alongside their aircraft, T10 parachute assemblies, kit bags and weapons containers were issued. After a quick fitting of parachutes, all gear was stowed inside the aircraft and manifests were checked for the last time.

Shortly after 0800 hours the first C119 took off and the rest of the aircraft departed at five-minute intervals. Once airborne, the pilots announced the first destination, Rome (or Naples) for refueling, and thence to a staging area at Adana, Turkey.

The Queen of Battle was on the way!

LETTERS *(continued from page 3)*

they were not uniform, they were emptied and refilled with sand.

. . . Why sand? Sand is heavy and holds in moisture . . . so that continuous maintenance on the bags is required. With sawdust-filled bags less maintenance is required and support given to the different firing positions is equivalent to the support sand-filled bags provide. . . .

HARRY L. MILLER
Lt, Infantry
Fort Dix, New Jersey

Correction

Sir:

With reference to the article, "Electronic Eyes and Ears," in the October-November issue of *Infantry*, the range of the AN/TPS-21 is from 90 to 5000 meters for personnel, and from 90 to 18,000 meters for vehicles (a portion of a sentence was omitted in printing).

ROLFE G. ARNHYM
Capt, Infantry
Command and Staff Department
The Infantry School

Thanks are due Captain Arnhym, co-author of the article, for detecting this slip. Infantry *regrets the error.*—Editor.

Back Covers

Sir:

Infantry's back covers are not only a handsome addition to the magazine, but —cut out and mounted—they provide a continuing source of appropriate material for dayroom decoration. We have mounted "I Am the Infantry" in our own dayroom, and several other companies I know of have used this and other back covers. . . .

WILLIAM H. GYAMI
Capt, Infantry
Co A, ISD
Fort Benning, Georgia

Kudos (Telegram)

Sir:

Congratulations on your article "We Don't Need 'Improved' Equipment." Many of us in industry heartily concur with your expressed viewpoints, believing that our . . . arms program is frittering away scarce and valuable time and money in marginal changes to existing antiquated equipment instead of actively searching for the major breakthroughs mandatory for survival on tomorrow's battlefield. Industry alone with its own "in house" funds cannot afford the extensive and intensive research required to create wholly new items compatible with organic army requirements. . . . Necessary funds must come from the Army itself, forsaking those unimportant marginal improvements (with their increased logistical problems) for real R & D effort. To paraphrase Sir Winston Churchill, "Give us the funds, and we will create the breakthroughs."

Name Withheld on Request

YOUR INFANTRY CAREER

This department provides important information on policies and personnel actions which affect your Infantry career. Material for Regular Army and active duty Reserve officers is furnished by Infantry Branch of the Officers Assignment Division. Similar material for Infantry officers of the USAR is provided by the Army Reserve Branch of the Adjutant General's Office. Information for the enlisted Infantryman is obtained from other Department of the Army agencies.

From Infantry Branch

FINAL SEMESTER PLAN (BOOTSTRAP)

The fact that advertising pays dividends is evidenced by our receipt of increased numbers of applications for "Bootstrap" under the provisions of Paragraph 11c, AR 621-5 (*Infantry*, January-March 1959 and April-June 1959). While this program is intended to provide assistance to officers who wish to obtain a baccalaureate degree, it is also applicable to higher degrees. However, "Bootstrap" cannot be used by officers who have only the dissertation, examinations, or thesis-writing requirements to fulfill. Attendance on "Bootstrap" is based on the need to complete required courses in residence study. A recent decision rendered by the Judge Advocate General also precludes completing legal training and obtaining a law degree under this program.

Several other points should be remembered when applying for "Bootstrap." First, the letter of acceptance from the college or university must specify exact attendance dates. Second, even though you may not have completed all college requirements prior to application, the institution's acceptance letter may indicate you will be accepted providing you complete certain courses before entrance. Your application should then indicate you are enrolled or will enroll to complete these required courses before the desired attendance dates. Third, your command headquarters must agree that you will be made available for attendance on the date or dates specified in your application. Fourth, it is important that your application is received in Department of the Army as far in advance of the requested attendance date as possible. Only in exceptional circumstances will applications be considered if they are received less than 120 days in advance.

PHOTOGRAPHS

All Infantry officers *below* the grade of colonel are encouraged to forward an 8″ by 10″ photograph direct to TAGO, Attn: AGG-INF. Name, serial number and date of picture should be placed on the back of the photograph. *This is strictly voluntary*. It is emphasized that Army regulations do not require a photograph be furnished. However, it is highly desirable that a picture be a part of your branch file. Passport photographs are acceptable.

Instructions on the submission of photographs by colonels are covered in AR 640-140.

CIVIL SCHOOLING IN PHYSICAL SCIENCES

Each year a selected group of Infantry officers is sent to civilian universities for postgraduate work in fields of study in which the Army has continuing requirements. To meet the increasing need for officer graduates in the physical sciences, especially in the fields of nuclear physics, electronics and guided missiles, more Infantry officers will receive training in the physical sciences

beginning in 1960. Officers who possess an undergraduate degree, have completed the Advanced Course and have a good background in mathematics (through calculus) and physics are encouraged to apply under the provisions of AR 350-205. This is a voluntary program and selection is competitive.

ADDITIONAL QUERIES

QUESTION: When can an Infantry field grade officer expect to be assigned overseas for an initial or second short tour?.

ANSWER: The list of Infantry lieutenant colonels who have not had an overseas short tour since June, 1950, is nearly exhausted. A second short-tour cycle has started to meet short-tour requirements in 1960. The second short-tour cycle for Infantry majors started in February, 1959.

To be eligible for a second short tour, the officer must have had an intervening tour in an overseas area where his dependents were authorized. Lieutenant colonels who have not served an initial short tour will be assigned to a short-tour area as they become available upon completion of stabilized tours. Generally, the first to return from his initial short tour will be the first assigned for a second short tour. This policy cannot be strictly adhered to because of the problem of availability of individual officers and the fact that all officers are not qualified for all requirements.

QUESTION: If I volunteer for overseas duty, what are my prospects?

ANSWER: Currently, the probability of acceptance varies according to the grade in which the officer is serving. Here is the present picture by grade:

Lieutenant colonels: If a lieutenant colonel is due a short tour, his volunteer statement for a long tour will not be considered. If due a long tour, his volunteer statement for either a long or short tour will be considered. If no foreseeable requirement exists, the officer's name will be added to a list for future consideration.

Majors: Same as lieutenant colonels.

Captains: Because of the large number of captains due long tours and the relatively few requirements for captains in long-tour areas, volunteer statements for long-tour areas are not currently being considered. If a captain is due a long or a short tour and he volunteers for a short tour, his volunteer statement will be considered. If no foreseeable requirement exists, the officer's name is added to a list for future consideration.

Lieutenants: A majority of lieutenants have had no previous overseas service and are therefore eligible for either a long or a short tour. Present policy is to assign lieutenants overseas only when they are able to complete a normal overseas tour in the area to which assigned. Because the availability of lieutenants exceeds the overseas requirements, volunteer statements for short-tour areas only are considered. If no foreseeable requirement exists at the time the volunteer statement is received, the officer's name is added to a list for future consideration.

QUESTION: Why are some overseas units short Infantry officers, though records show no shortages in that theater?

ANSWER: Major overseas commanders retain the prerogative of assigning officers within their command. There are many branch immaterial positions within a command which must be filled by officers of the combat arms. A decision to assign Infantry officers to these positions naturally has an impact on TOE units.

QUESTION: Is a branch immaterial assignment detrimental to an officer's career?

ANSWER: On the contrary, an assignment of this nature is considered an excellent opportunity to broaden the individual's experience and background for future assignments.

QUESTION: Is it true that only the past seven years of an officer's record are considered for personnel actions?

ANSWER: No. This misunderstanding occurs because many officers erroneously believe that the OEI (which is derived from efficiency reports for the past seven years) is the governing factor in effecting personnel actions. Actually, an officer's *entire* record is thoroughly reviewed and carefully analyzed in comparison with the records of his contemporaries before any personnel actions are taken. The OEI is used by personnel-action agencies in DA as a broad screening device only. The OEI is not used as a finite indicator of an officer's efficiency.

QUESTION: Can career branches tell an officer the reasons why he was not selected for promotion?

ANSWER: No. Career branches are not part of the promotion selection system. Since promotion boards are not required to give the reasons for their decisions, the branch can only review the officer's record and give its opinion as to the reasons why the officer was not selected for promotion. If possible, the officer should visit his career branch and carefully analyze his record with an officer assigned to the branch. If a visit to the branch is not possible, the officer concerned may authorize another officer to review his records for him as outlined in AR 640-12.

QUESTION: What action is taken when an officer is found not fully qualified for promotion to first lieutenant, Regular Army?

ANSWER: Discharge by law.

QUESTION: Are there any restrictions on the voluntary retirement of Regular officers who are graduates of the National War College, ICAF, service war colleges, or the Command and General Staff College?

ANSWER: Yes. Effective with the 1955-56 classes, an officer is not eligible for voluntary retirement until he has served four years on active duty after graduation from the National War College, ICAF, or one of the service

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IS THE PARATRO

by Sp4 Howard R. Webber

Cumbersome is the Word

The paratrooper can no longer provide the kind of in-and-out mobility the modern battlefield requires.

THE PARACHUTE is an expedient. Few have ever claimed that it has any primary advantages other than this simple one: it gets the soldier out of his plane and onto the ground when the aircraft itself cannot land.

Parachute operations have always been a bit unwieldy. They depend upon proper weather conditions. They require specially trained and specially equipped soldiers. They vastly increase logistical problems. They complicate control.

When the choice was between parachute delivery or no delivery at all, such difficulties were tolerable. Dangers from interceptor aircraft and ground fire were hurdles, but not insuperable ones. Reorganization in the landing areas took time, but that time was necessary. There was always the possibility of an armored counterattack, but it had to be faced.

Now, however, the price-cost balance has shifted. The awkwardness of airborne operations has become less tolerable, and we are finding better ways of achieving the same objectives—extreme mobility, surprise and shock.

This is no sudden development, but is the result of changes that have been occurring over a number of years as we have perfected our vehicles of air transportation. Now these vehicles can land nearly any place the airborne soldier can, and many times they can land when he cannot. With the integration of helicopters into tactical forces, there exists the possibility of conducting major operations which will achieve airborne objectives, but dispense with the parachute stop-gap.

Equipment developments may be expected to extend this trend in the future. Our helicopters will be swifter, larger and more versatile, and will operate over longer ranges. It is likely that VTOL vehicles will combine fixed-wing speed with rotary-wing flexibility.

This is not to say that airborne operations are "obsolete," or will become obsolete in the foreseeable future. It is, however, to say that the utility of airborne operations is limited now, and will probably become more limited in the next several years.

We have gone to great lengths to create effective airborne forces, and in fact have pegged a large part of our military policy to the existence of such forces. Training, equipping and supporting airborne troops is an undertaking of substantial dimensions. Yet the plain fact—which is often mentioned but rarely faced—is that we don't have the airlift available to apply these forces as our current policy indicates they are to be used. A large portion of the effort and money we have expended is therefore prevented from having the effects we intend. An airborne soldier is no more effective than any other soldier unless he has a plane to ride in—but he costs much more to produce. What is more, he may lead us to plan on a capability we only *seem* to have. We may project impossible tasks and lay elaborate plans which we cannot make good.

This situation is not likely to change. Realistically, therefore, we should have to alter our emphasis upon airborne operations, even were helicopters not a consideration.

But, of course, they are. We can count on helicopters because they are the Army's own. They are responsive to the tactical commander. They can better avoid radar detection. They can deliver troops ready to fight—without the kind of reorganization which is always necessary in airborne operations. One thing is sure: the airborne soldier is of no use on the way down. To dispense with this step in the aerial delivery of troops is an advance no one can dispute.

To helicopterborne operations there are, as matters now stand, important qualifications. To begin with, we don't have enough helicopters. But the point is, we have some control over this particular requirement. Applying a portion of the money now tied up in airborne troops might very well procure a sizeable increase in our rotary-wing equipment.

In fact, to date we seem to have a divided mind on air mobility. We have split our emphasis between an airborne and an air-landed capability and as a consequence we are fully equipped to exploit neither. This state of affairs only becomes serious when we operate under strict manpower and budget limitations. We do now, and I believe the time has come to decide upon a *primary* emphasis.

Distance is another damper upon

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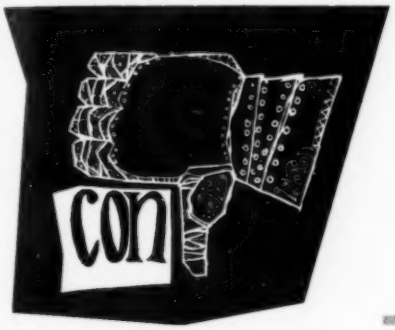
...OPER OBSOLETE?



by Capt Roger M. Pezzelle

Strategic Power Ready Now

Airborne is the only force we have which can meet the varying requirements of war—or cold war.

IT WOULD be fine to be able to say, "We really don't need the paratrooper . . . after all, he is expensive, requires special training and presents many problems we could well do without."

It would be fine to be able to say this . . . but unfortunately, we can't. As long as there are wars—or at least the threat of wars—his capability for swift offensive action will be an essential part of the combined arms team.

Generally, arguments that the paratrooper is obsolete are based upon the threat of nuclear weapons, the deadliness of today's air-defense weapons, and the advent of the VTOL aircraft (vertical take-off and landing). While the paratrooper cannot ignore these challenges, they certainly do not spell his demise. Instead, they only test his mettle.

We know that the Infantryman has not been "ruled out" by nuclear weapons but instead has adapted himself to the changes these weapons have brought about. The Armor soldier has also changed some of his ways to meet the nuclear threat. Is there any reason, then, why the paratrooper cannot make similar changes to meet the nuclear challenge? To look at this realistically, the paratrooper is no more vulnerable during marshalling for an airborne assault than is an Infantry or Armor soldier in an assembly area. After all, any concentration on the battlefield represents a nuclear target. The soldier's specialty makes little difference.

As in the case of the ground forces, the parachute unit is forced to disperse due to the nuclear threat, using several marshalling areas and departure airfields. Departure airfields are by no means static. Modern aircraft can use numbers of small or improvised air-landing fields over all of which surveillance is not easily maintained at one time. Marshalling is accomplished at the last possible moment, thereby enhancing secrecy and reducing exposure time. Greatly improved aircraft, equipment and techniques permit rapid outloading of airborne units. By exploiting dispersion, darkness, speed and surprise, the airborne unit reduces the dangers of nuclear attack during marshalling and departure, and in flight to the objective area. Once in the objective area, the parachute unit is actually less likely to come under nuclear attack due to the interspersal of friendly and enemy forces and the fact that the area is within enemy-held territory.

As for enemy air-defense capabilities, they by no means lay a sentence of doom on air activity. Certainly enemy air-defense is a difficulty, but no more so for airborne forces than for helicopterborne forces (and possibly a little less so). Admittedly, air-defense weaponry of today *does* require advances in troop-carrier aircraft, in electronic spoofing devices, and in techniques of approach to the objective area by airborne forces. However, these advances are already going forward, and our technology will undoubtedly make further improvements. In any event, there is no air-defense system that has a total, sure-kill capability. In fact, low-flying aircraft can negate a great proportion of air defense by hitting weapons gaps and capitalizing on the speed and surprise which are inherent in airborne operations.

Remaining on the list of arguments against the paratrooper is the VTOL aircraft—for today, at least, the helicopter. The VTOL capability is considered by some to supplant the requirement for the paratrooper by making it possible to air land combat forces in areas where there are no suitable airfields or large areas for drop zones. The helicopterborne assault is certainly a valuable addition to our means of deciding a land battle and should not be minimized. However, the range limitation of present-day VTOL aircraft, and that of their probable immediate successors, is a powerful argument against trying to replace the parachutist of today with helicopterborne forces. To rely on helicopterborne forces entirely for our capability of vertical envelopment is to presume that the enemy will wage war only in areas which are within 100 miles of areas occupied by United States forces. Obviously, this is an unlikely possibility.

The questions, then, logically follow, "How could we replace the parachutist? What military commodity does he provide that some other force cannot?"

There are many answers to these

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(Continued from page 28)

Cumbersome is the Word

helicopterborne operations. The helicopter certainly can't compete in the strategic application of air-mobile troops. And in long-range tactical applications it has some disadvantages, though these will probably be considerably reduced as helicopter development progresses.

The kind of emphasis we need, therefore, should restrict the airborne capability to whatever strategic requirements it is able to meet, and rely on the air-landed capability for most tactical requirements. Exceptions are small-unit Special Forces and Pathfinder types of operation, in which distance is a factor or the parachute offers certain specialized advantages. This is a realistic compromise, one which takes into account a number of variables and comes up with a solution which balances preference with possibility.

There are persuasive arguments for this kind of adjustment in a more comprehensive appraisal of the role airborne and air-landed troops can be expected to play in any future war. Whether it is nuclear or non-nuclear, we feel pretty certain that such a conflict will be more fluid—and perhaps much more fluid—than previous wars. In consequence, the Army as a whole has begun to develop radically new mobility means of all kinds. We have more ground mobility—both wheeled and tracked—than we have ever had before. We need a complementing kind of aerial mobility that can be integrated into our over-all mobility plan. Helicopter mobility fills the bill.

In the "ins and outs" of the wide-ranging warfare we anticipate, helicopters can move small, tightly knit units to meet the developing tactical situation with a refinement of response that just is not among the possibilities of the standard airborne operation. Unfortunately, airborne troops cannot go up as they came down, and fluid warfare implies evacuation as well as delivery. The helicopter trooper can fly and fight, fly and fight, interminably. The airborne soldier, on the other hand, can fly and fight—period. He must be reinforced or he must walk out.

Traditionally, airborne operations gave a shock-surprise effect as a prelude to coordinated ground operations. In future wars, there will be many occasions when we want air mobility but we don't want to operate on the airborne scale. There will be many times, that is, when we want *real* air mobility that will get us in and out as well. This is the kind of air mobility the air-mobile soldier has and his airborne counterpart cannot have. It is the kind of mobility that matches the ground mobility we are trying to achieve. It is the only kind of mobility that is adaptable to sustained ultra-mobile operations.

Cumbersome is the word.

Airborne is too cumbersome, and that kind of ponderousness we cannot afford on the modern battlefield. It isn't that airborne operations are no longer possible. Instead, it's that in many instances they are no longer advisable.

SP4 HOWARD R. WEBBER, co-author of "We Don't Need 'Improved' Equipment" in the October-November issue of *Infantry*, graduated from Dartmouth College as Phi Beta Kappa, Summa Cum Laude. He took graduate studies at Lehigh University where he taught English until 1957, when he entered the Army. Specialist Webber received basic training at Fort Dix and Armor training at Fort Benning. He was later assigned to the staff of *Infantry* and is now assistant editor. He is the author of a number of nationally published poems.

The opinions expressed in this article are those of the author and do not necessarily reflect official thinking of the Infantry School.

(Continued from page 29)

Strategic Power Ready Now

hypothetical questions, but basically it boils down to this: the airborne unit provides immediately available combat power which is unequaled in versatility, range, and speed. Whether we like it or not, he has no substitute— now or in the foreseeable future.

Unlike some projected force of the future, such as a lightweight air-transportable Infantry or Armor unit, the airborne unit is here *now* and is one of our prime deterrents to open Communist aggression. Every time the saber rattling becomes audible, it is the 101st or perhaps the 82d Airborne Division which provides the major force to "saddle up" for combat. These units, with organization and equipment tailored for efficient and rapid air movement, need only ammunition and airlift to be on their way—anywhere in the world.

Additionally, the airborne unit is not limited by requirements for air-landing facilities to gain a foothold, and therefore can overcome geography which prevents assault by other forces. Consider an area such as Laos. The lack of air-landing facilities in this area would prevent the employment of non-parachute forces in the assault. Such units would have

to be landed in Vietnam or Thailand and moved overland to the combat zone. The overland trip would be extremely costly in time and the force would very likely be subjected to constant guerrilla attack. On the other hand, airborne forces could be parachuted directly into such a combat area. The parachutist, unencumbered by heavy equipment and accustomed to independent operations, is ideally suited to this type of combat in undeveloped areas. And today, strangely enough, the principal target of Communist aggression seems to be the undeveloped area.

In many geographic areas, it may be possible and desirable to employ other than airborne forces immediately. However, even if there are a limited number of available landing areas, a combined air-landed and parachute assault may be required. Again, the need for the paratrooper is manifest.

Strategic mobility is another important characteristic of airborne units. The parachutist's mode of transport to battle areas provides the long range and that final touch which makes him irreplaceable today—speed. The parachutist (and his parent Airborne division) cannot only move *all* of his organic equipment to a point of decision—he can move it faster than can his basic Infantry counterpart. Essentially, the question is one of weight and available airlift. As Kissinger points out in referring to the Infantry division in *Nuclear Weapons and Foreign Policy,* "It would require the entire available United States airlift, including the civil reserve fleet, over 30 days to move one division from the United States to the Middle East, provided they were not required for any other mission—two most unlikely contingencies." Kissinger goes on to point out that the Airborne division, because of its light equipment, would require half the time.

Having disspelled the possibilities of replacing the parachutist today with non-parachute troops transported in VTOL aircraft, and having ruled out air-transported troops in troop-cartier aircraft as an adequate alternative, we find ourselves with a single remaining alternative—that of pre-positioning forces everywhere on the periphery of the Communist World to meet any and all situations. The impracticality of this solution is apparent. We cannot be so complacent as to rely completely on the continued friendship of the "outpost" nations toward the West. Experience has shown us that governments change and, in fact, that under the impetus of Communist subversion or direct aggression they may change rapidly and unexpectedly. Thus we run a constant risk of being denied the use of bases we have counted on, and lack of these bases would automatically impose upon us a requirement for the capability of "jumping" into any fight.

If not now, when will the paratrooper become obsolete? Obviously he will become obsolete when we achieve the capability of moving air-transported (in aircraft, missiles, or other types of vehicles) units of greater combat power farther and faster than we can move the airborne unit of today. When we will achieve this capability is purely a matter of conjecture. It is evident that an aerial vehicle which combines the VTOL capability with a range of strategic significance is very, very far in the future, if practical at all.

Rather than speculate on the demise of the paratrooper, we must recognize the capabilities and limitations of the airborne unit of today and make a determined effort to reduce the one and to capitalize on the other. The parachutist requires increased firepower in lightweight weapons to offset his lack of speed and armor protection in the airhead. He needs improvements in his techniques and aircraft to permit his making maximum use of available airlift. For example, only a single stick of 20 parachutists can exit from the cargo ramp of the C130 aircraft following a heavy drop load. Also sorely needed is a lightweight, collapsible aircraft suitable for reconnaissance missions to provide a capability for ranging farther from the airhead with greater speed. These aircraft could also mount antitank weapons to supplement the primary antitank weapons of the unit. These are just a few of the possible improvements which can be made.

Such developments will improve not only our airborne capability—they will also find common acceptance, in most instances, in other types of units, and will, in fact, eventually pave the way for the merger of the Airborne and Infantry division into a single air-transportable universal division of the future.

Adding all of this up, the parachutist's shadow looms large indeed on the battlefield of the future. It is evident that he is not a luxury we are tolerating for his past glories. Nor is he a weapon with a single questionable capability. He is a versatile, skilled—and very necessary—part of the combined arms team.

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The opinions expressed in this article are those of the author and do not necessarily reflect official thinking of the Infantry School.

The Changing Face of the INFANTRY

1 Air loading and other plans, drafted in advance, come into use as the battle group prepares an air-mobile operation.

2 Briefings acquaint every man with as many aspects of the plan as time allows.

5 Initial success depends upon aggressive small-unit action. Normally the air-mobile operation is planned to avoid heavily defended areas.

3 Loading takes place at widely dispersed locations to reduce vulnerability to enemy action and to preclude telegraphing the move.

4 After flight to the objective area, troops debark at dispersed landing sites and move rapidly to seize initial objectives.

AIR-MOBILE operations, long the province of the airborne and other specially equipped organizations, must become commonplace for all Infantry units. With minor adjustments, the battle group can be made air-transportable by existing Army aircraft, while remaining capable of prolonged combat. This adaptability to air transport, however, does not depend solely upon equipment. To take full advantage of any capability, men must learn to exploit its strengths and to minimize its limitations.

The air-mobile operation gives the battle group commander a speed of movement never before possible; it also creates problems of supply, coordination and, to some extent, ground mobility. These, however, are problems which we have faced before, and they must not be allowed to limit Infantry's use of the air.

Concepts for air-mobile operations are now in being. Doctrine has been established and is being implemented in many units. The battle group pictured on these pages is preparing to meet the swift pace of future war.

The face of the Infantry has been changed by new weaponry and equipment, and Infantrymen must adjust their thinking to meet the challenge.

6 Company crew-served weapons land in the assault echelon to provide early support.

Continued on next page

7 As the air-landed echelons build up, assigned objectives are secured and organized.

8 Battle group supporting weapons land on schedule.

11 Army aircraft drop prepackaged loads of vital resupply on call.

12 To reduce vulnerability to nuclear attack, some units may be moved to the reconnaissance and security line.

13

9 Remaining strong points are reduced rapidly to preclude interruption of the continuing landings.

10 Command and administrative vehicles are brought in early to facilitate further operations.

13 Antitank protection in an air-mobile operation depends primarily upon organic weapons. Here an assault weapon crew prepares its position on a likely avenue of approach to the airhead.

14 On the reconnaissance and security line outposts are manned to provide early warning.

15 The reconnaissance platoon leader makes contact with the link-up force as the airmobile operation draws to a close.

TOE 7-17-1975

ONLY MINOR mechanical problems —all of which we may reasonably expect to solve—stand in the way of a practical aerial vehicle (AV). Types of these are variously referred to as "zero ground pressure" or "air ducted" vehicles. The AV, a logical derivative of the jeep, the deuce-and-a-half, the mule and the Scorpion, is one more step towards advanced mobility for Infantry.

The pace of equipment design and production has increased so much that it has become very important for Infantrymen to develop doctrine for the employment of this equipment

We must develop doctrine before detailed equipment design in order to get the most out of the aerial vehicle and other future equipment.

by Capt Charles R. Smith

while the equipment itself is being developed. In this way, Infantrymen will not be prevented from using their new equipment efficiently and creatively simply through ignorance of its possibilities. When the tank was introduced into warfare, years passed before its potentialities for mobile firepower were fully understood. We cannot allow this doctrinal lag to be repeated in the case of the AV. Modern warfare is likely to allow none of the comfortable intervals for "catching up" that earlier wars provided. We can no longer rely upon the lessons of one battle to win the next, for any initial inferiority in our doctrine or equipment may only be multiplied as the conflict progresses.

The development of doctrine before detailed equipment design is complete will also help to ensure that the design is well adapted to Infantry requirements. Unless specific uses and functions are established which go somewhat beyond the general kind of requirement usually set up by development boards or committees, the possibility exists that refinements in design will be deferred until the equipment has undergone extensive field use. A lag of this kind is as dangerous as a lag in doctrine.

For these reasons, it is necessary to begin talking—concretely, objectively, practically—about the nature and employment of the AV. One of the primary points that must be made about the AV is that it is not intended to remove the Infantryman from personal, ground combat. Instead, it is intended to do more effectively some of the things its predecessors already do: move the Infantryman to the area of decision quickly, flexibly and in top combat shape, and support and resupply him once he is there. As with all other Infantry vehicles, the vehicle itself is auxiliary to the man, not the man to the vehicle. Accordingly, in the area of decision, the Infantryman will still be fighting in the traditional Infantry manner.

Since the nature of the power source will broadly determine the practicality of the AV, this problem deserves consideration. The recent Atomic Energy Commission announcement of a five-pound nuclear generator or power-pack seems to provide a basis for the development of the AV as a nuclear vehicle. There are several obvious advantages to this approach, but perhaps the most important is a vast reduction in fuel supply and in maintenance, and a corresponding independence from supply and repair bases. The nuclear power pack seems the ideal motive force for our most advanced mobility concepts, for a liquid-fuel internal combustion engine would have limitations which are already apparent in the helicopter—vibration, noise, fuel-bulk, large-scale maintenance problems and complexity of operation. The nuclear plant, however, would create a vehicle of extraordinary capabilities.

Presuming, then, that a lightweight nuclear power pack can be developed which is practical for use in the AV, we can go a little further and lay down the reasonable specifications of speed to 90 mph and lift-equivalent of a 13-man squad. It is also logical that the AV will serve as a weapons mount for organic fire support and will be provided with navigational, surveillance, gunnery and communication equipment powered by the central nuclear pack.

If, as is likely, new equipment of the AV type is integrated into the present rifle company structure, it is possible to derive a projected TOE for the AV-equipped rifle company of 1975, when, we will assume, the AV will be in the hands of the troops (Figure 1).

By 1975 the small arms of the rifle squads will probably have evolved into light, multi-purpose, hand-held weapons. The weapons platoon, retaining its general functions, will probably be assigned those AVs mounting multi-purpose (sub-KT or HE, vehicle or ground mount) assault weapons and missile projectors, which will have replaced the recoilless rifle and mortar.

The TOE establishes a rather rank-heavy structure, similar in this respect to the Air Force squadron. This is not surprising, for, like the fighter or bomber pilot, the AV pilot will be trained in navigation for cross-country movements, both day and night. In addition to flying and navigating the vehicle, the pilot will be responsible for surveillance and for using the two vehicle-mounted machine guns which will provide fire support from air and ground for his squad when it is dismounted. Squad leaders and other command and control personnel will be qualified pilots.

Should command structure be determined by unit capability or unit size?

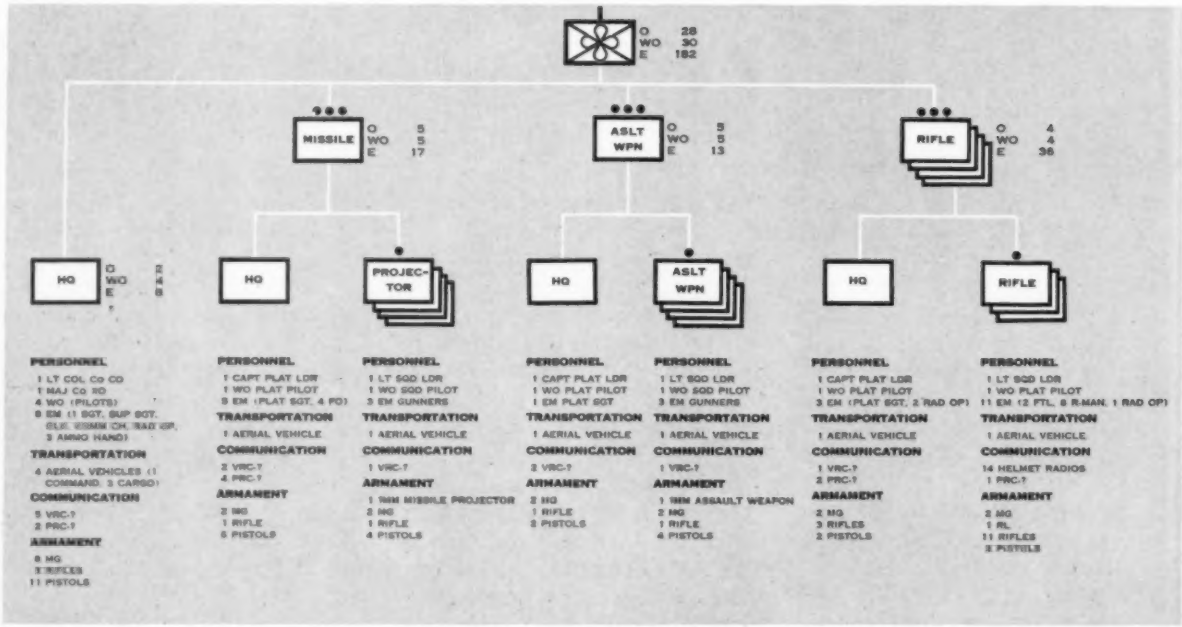

Figure 1. A proposed TOE based upon unit capabilities of 1975.

Enlisted rank structure will be top-heavy due to skills required for maintenance of the AV and for operation of its electronic instruments, and to the very precise gunnery demanded in weapons platoons with nuclear capability. Furthermore, it no longer is correct to measure command responsibilities in terms of numbers alone. The company commander of 1975 will have total responsibility for employment of sub-KT nuclear weapons. He will operate over areas which would challenge the battle group commander of today. His tactical operations, more fully developed hereafter, will consist almost entirely of independent or semi-independent operations and he will operate with a skeletonized staff. Thus, viewed in the light of responsibility and tactical knowledge required, the suggested grade of lieutenant colonel as company commander becomes realistic.

Although the characteristics of the rifle company and its members will undergo radical alteration in the next 15 years (consider the changes of the last 15 years), basic, tested tactical usages will go remarkably unchanged. For instance, we will always need information, and protection from surprise. Therefore, the requirement for four platoons in the maneuver element is not unusual since one of the four will be constantly on a reconnaissance or security mission with the others forming variously assault, blocking, reserve or counterattacking teams. Also, the four-multiple structure occurs in the weapons platoon since missile and assault weapons squads will be attached to rifle platoons when dispersion requires.

Excepting the missile and assault weapons squads attached to the rifle platoon on reconnaissance or security missions, the weapons platoons (-) will remain under company control as long as the situation permits. This is advantageous both tactically and logistically—tactically because fires from the platoons can readily be massed and decisions speeded concerning time, location and size of nuclear rounds to be fired. Although "cleaner" nuclear weapons will have been developed by 1975, increased use of nuclear weapons will increase possibilities of fallout hazards. The AV will decrease the restrictive effects of fallout patterns caused by surface bursts since dangerous areas can be cirmumvented or flown through rapidly. In many respects the attack and defense will be indistinguishable. Specifically, digging in will not be feasible since it would limit the mobility of the formation. Thus, a defense may well consist of a series of attacks and limited counterattacks conducted on terrain of our own

choice with the greatest latitude for the company commander concerning limits. Strong points of a highly mobile nature will be the most commonly used defensive system with gaps between points covered by AV patrols in daylight. During darkness AV mounted radar and infrared will do picket duty. Of course, all-around security will be maintained by aerial picket vehicles. Rather than a line to hold, the company will have an area to dominate and, as the tenor of operation shifts from defensive to offensive, the forward or lateral limits of the units' area of responsibility will be shifted forward or laterally to include terrain which the next senior commander considers essential to his mission.

In the attack the AV will be used much as the Infantry carrier is used today—contouring the ground as far forward as terrain and the enemy situation permit. Information gleaned from the rifle platoon on reconnaissance will help determine the dismount location. After dismount, ground tactics will be similar to those used today with emphasis placed on flank attacks and envelopments facilitated by all units' capability for rapid concentration and dispersion. The ground tactics as well as the aerial formation will continue to depend upon our present standard of mission, enemy, terrain, troops available and a vital added factor—air vehicles available.

Radio contact between squad leader and squad members will be vital for control. The squad leader's communication link will also ensure maximum possible support from the AV's organic automatic weapons, as the AV will follow its dismounted squad by bounds to give close support both from hull-defilade positions and from the air when necessary. Also, this close-up position will ensure that the shortest possible time lag occurs between air and ground movement by the squad. In this fashion the squad and platoon leaders will be enabled to shift their attack rapidly and independently from ground to air to ground again, all the while staying within the framework of the attack order.

Artillery as we know it today will not appear on the 1975 battlefield. The assault weapons will neutralize line-of-sight targets within range, while FOs from the mortar platoon (using the AV as an OP when necessary) call for reverse-slope fire. Long range targets and interdiction-type missions will be the province of missile artillery.

Tanks apparently do not have a place on the battlefield of 1975. Their vulnerability to direct fire missiles, and relative immobility in difficult terrain, are not balanced by the protection they offer from small arms fire and conventional artillery.

Because the AV will be most vulnerable at altitudes exceeding treetop and consequently will avoid flying at these heights, less rapid movement will be possible at night in forward areas, since speed of movement will be dictated by infrared range and pilot's reaction time.

Logistically the gravest problem will be ammunition resupply. To sustain the offensive at the rates made possible by the AV, resupply will be by aerial cargo vehicles (ACV).

The ACV will be identical to the squad's AV. This will permit substitution of an ACV for an AV in the event of accident or a vehicle lost through enemy action.

Each Infantry company will have three of these vehicles for distribution of all classes of supply to forward elements. Considering their speed, three ACVs will be sufficient for all resupply, leaving an emergency buffer for a deadlined or aborted AV.

Class I resupply will be less difficult in 1975. For instance, frozen or superconcentrated rations, brought directly to squads for heating on the built-in heating element in the AV, will eliminate field kitchens and cooks. Fuel resupply will be the greatest saving the AV will effect for the Infantry. The nuclear generator will undergo replenishment and service during regular monthly third-echelon maintenance periods. Since the conduct of the defense will be fluid and mobile, most of the heavy, bulky fortification tools and equipment formerly used in the defense will be eliminated.

The rather radical tactical, logistical and organizational changes described are the direct result of the AV, and of the nuclear generator which powers it. I do not intend the specifics I have mentioned to do any more than stimulate Infantry thinking about the AV. I realize that my TOE is not complete—there are obvious omissions, such as FDC computers. Necessarily, my random comments upon it are speculative and sometimes vague.

Yet I think the TOE and comments indicate how thoroughly technical developments like the AV can alter the traditional set-up, and how necessary it is to accommodate ourselves to change if we are ever going to achieve familiarity with and confidence in our new equipment. Unless we have doctrine ready-made for the AV when it is delivered to us, there is a danger that we will try to use it like a jeep. The point is not that the AV can't do what the jeep does, but that if we give it a chance it can do much more.

Capt Charles R. Smith was graduated from the United States Military Academy in 1950, and later served with the 35th Infantry in Korea. Beginning in 1951 he served as tactical officer and company commander, OCS, at Fort Benning. From 1953 to 1956 he was platoon leader, company commander and assistant S3 with the 18th Infantry in Germany and later at Fort Riley, Kansas. Captain Smith has attended the Basic Airborne, Associate Infantry Company Officer, Ranger and Advanced Courses at the Infantry School. He is presently assigned as PMST at Xavier High School in New York City.

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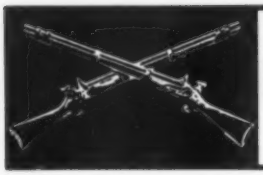

THE SOUNDING BOARD

This department gives every soldier an opportunity to "sound off" on a wide variety of subjects. It provides an outlet for thinking which need not conform to doctrine or policy. We are interested in constructive ideas—well-conceived and concisely expressed—which challenge or inform. Articles will be paid for at regular rates.

Let's Sack Dizzy-Izzy

by Lt Louis C. Menetrey

ONE OF the gravest problems faced by Army leaders today is the lack of time. Whether it is time required to produce better weapons or time required to produce better soldiers, the problem is generally the same—We just do not have enough of it.

Until someone invents a machine that can cram 40 hours into a 24-hour day, commanders must resolve the problem of making better soldiers faster by searching for—and finding—more efficient training methods.

This search for pure efficiency in training, however, should not overlook one of the most important factors in learning—motivation or the desire to learn. Men who want to learn will pursue a subject relentlessly—during breaks between classes, before and after classes and in bull sessions in the barracks. The problem, then, is to motivate the men and the unit so that training becomes a challenge. Webster defines a challenge as an invitation to engage in a contest; and therein lies one of our finest opportunities to improve training.

Sadly, one of the time-honored customs of the Army has degenerated into the Organization Day type of nonsense, where grown men shamefacedly compete in such contests as sack races, dizzy-izzy relays and similar competitions. Not only are these contests a waste of time but they make men wonder to what sort of a fighting Army they belong. How proud it must make a unit to say, "We have the fastest dizzy-izzy squad in the 932nd. . . ."

There is, however, a type of competition which not only has results men can be proud of but which will increase training efficiency more than a platoon of inspectors. This is the traditional Military Field Day. There is nothing new about the term Field Day and it has more than one connotation. I refer, however, to a series of competitive events *purely military in nature*, held at battalion, battle group or similar level, with platoons and squads as logical basic competitive units. These military competitions require almost 100 percent participation and cause nearly every member of every unit to perfect some skill beyond the degree he would have attained were the competitions not held. It is chiefly the fundamentals, the basic skills, that prosper.

The Field Day cultivates the desire to excel, both in the individual and in the group. It appeals to a soldier's loyalty for his outfit. He wants his platoon or squad to win. It also provides the incentive which results in an increased desire to learn and also develops a sense of teamwork.

Subjects in the Army Training Programs for Basic and Advanced Individual Training can be used as a point of departure. Yet any unit can tailor the events to meet its own needs, and each organization, in selecting events, should consider the special skills peculiar to itself to add useful variation and coverage. However, it should be remembered that every man in the Army should be trained as a fighting soldier and his proficiency in basic military skills should be such that at any time he can take his place on the line ready to fight.

Events for an Infantry Battle Group's first field day might include the following:

- Best Turned Out Soldier—One man per platoon.
- Best Looking Rifle—One rifle per platoon.
- Hand Grenade Throw—One man per platoon.
- PT Test—One man per platoon.
- Compass Course—Two-man team per platoon.
- Shelter Tents—One 11-man squad per platoon.
- First Aid Carry—Relay Race—One 12-man team.
- Five Mile Road March—One 11-man squad per platoon.
- Disassembly and Assembly Blindfolded of All Weapons in the Rifle Platoon—One man per rifle platoon.
- 81mm Mortar Drill—One five-man squad per weapons platoon.
- Machinegun Drill—One three-man team per rifle platoon.
- 106mm Rifle Drill—One four-man squad per weapons platoon.
- Best Vehicle—One vehicle with driver per platoon.

The events and variations of events are almost limitless. It would be advantageous, of course, to include live-fire competition with each of the

organic weapons. However, range facilities and time factors may not permit this on many posts. Care must be exercised to ensure that all the platoons and squads have, within reasonable limits, an equal chance, and the scoring should emphasize the platoon and the squad. Points won by an individual would count also for his squad and platoon as would points won by squads or gun crews. Two permanent rotating plaques for the winning squad and platoon would provide continuity. Each time the Field Day was held the winners' names would be engraved on the plaque. Medals could be given to the winner of each event with trophies for the first three winners with the highest aggregate-point scores.

There is never going to be more time available in the training cycle. Rather there will be more weapons to master and more skills to learn. Therefore, to improve training and to save this precious commodity—time—the desire to learn must be increased. A Military Field Day will help provide an incentive toward this goal.

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Thought Projector M1A1

by Mr John W. Gause

THOUGHT-PROJECTOR M1A1 — what is it? As you know, we have Vugraph projectors, Beloptikan projectors and film projectors. Also—while you may not have realized it—we have the thought-projector.

Take Joe Wise, for example. Joe is someone you've talked with, I'm sure. He might be a captain or a colonel. Regardless of rank you'll remember him as a "thought-projector," a new name for the officer with stars in his eyes.

A "thought-projector" is a man who does more listening than talking. Agreeing with Mark Twain, he believes that "a man that ain't listening, ain't learning." He doesn't underestimate the worth of legitimate, worthwhile discussion, but he's more interested in getting *you* to talk. Thus he's skilled in the interview method. He's almost as adept as Clarence Darrow in cross-examination. He's a loaded-question expert. He'll go in any direction, take any side, to get you to spill ideas, thoughts and notions that you may never have thought of using.

He's an avid reader. Not satisfied with hunting for raw ideas, he looks for the more refined, polished thoughts that are recorded in print.

He knows and wants to know a lot of different things about all sorts of things. Yet as he gleans information, he discriminately sorts it, recording just those facts and thoughts that he feels will be of value. And as he reads, he takes on an argumentative attitude. "Why should I believe this? Do other people have different ideas on the same subject? Can these ideas be improved? How?" These are the kinds of questions a "thought-projector" asks as he reads.

But he is also a writer. He believes in getting new and important notions on paper. Aware that ideas are of little use unless they are recorded, refined and modified to fit special situations, he writes. And it is this trait that makes him stand out from his less ambitious colleagues.

In effect, he combines his thoughts and the notions of others, and ends up with a workable "new" idea. He gets credit for this idea simply because he had the skill to draw from his thought sources, and to beam ideas onto paper.

But many of us aren't so willing to write things down. How many times have you awakened in the silence of early dawn with a new, *workable* idea buzzing around in your head? How many times have you talked about some ideas that "someone should write a book on?" How many times have you read an article on a "new" idea and wanted to say—or did say—"Heck, we've been doing that for years?"

Joe Wise, on the other hand, *always* goes into action. If his day begins with a new idea, he jumps out of bed, takes a notebook from his night table and records his thoughts before they are dimmed by the day's

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activities. Being a good "thought-projector," he writes the book on that idea that a book should be written on. Chances are that "new" idea was authored by him in the first place. A "thought-projector" listens, reads and writes!

Many officers—even *most* officers—have the first two qualities that make a good "thought-projector." If not, these qualities are easily acquired. Just listen more and read more. It's as simple as that.

The third characteristic isn't quite so easy to attain. To acquire the ability to write takes work, hard work and a lot of it. The rewards are well worth the effort, however, especially now that increasing command emphasis is being placed on effective writing, when it's almost a write-or-be-left-behind proposition for the career-conscious officer.

This writing emphasis is all around us. Army-wide, DA Pamphlet 1-10, "Improve Your Writing," is the first step. The foreword of this little publication pretty much sums up how the Army feels about writing:

"Commanders at every level should strive to improve their own writing and insist on equal effort by all members of their staffs. The people who write well should be openly commended; those who need help should get it. Impetus must come from the top."

Many service schools, too, are encouraging better written expression. Here at the United States Army Infantry School, for example, the monograph program will be chucked in favor of 10 hours of instruction in effective writing. Emphasis during these 10 hours will be on staff writing, with students preparing staff studies instead of monographs.

This program will be helpful. Command emphasis on effective writing is long overdue. But as valuable as instruction and command backing may be, they will not make you into a "thought-projector." That's something you'll have to do for yourself.

Let's assume for a moment that you have the first two characteristics. You like "bull sessions"; you like to listen and read. But you don't consider yourself a writer. You don't feel you have the know-how to write, say, an article for *Infantry* magazine. Now what?

The first step is a psychological one. Don't feel you have to be an accomplished writer to sell worthwhile ideas. Desire is important here. And accuracy. Don't put off writing. One of the biggest jobs in writing involves getting the seat of your pants against the seat of a chair. If your ideas are good, people should hear about them. Your editor recognizes this.

Writing isn't altogether different from things you do every day. You've heard it said that writing is thinking on paper. And the officer must be thinking all the while. It follows then that good, sound, logical prose is also good, sound, logical thinking. Thus the second step you must take in order to write effectively may also be considered a mental one.

Rule number two, then, is this: Organize your thinking before you try to write anything. Some people can do this in their heads. Others need some kind of aid, like an outline. Do whatever suits you best, but organize your thoughts.

Constantly work to improve your ability to communicate via the written word. Read and study some of the excellent books and manuals (the Air Force has some good ones) on effective writing and editing. Learn all you can about the mechanics of your own language and the tools you'll be working with. Select one or two of the best grammar books you can find (a college-freshman text book is about the right level) and keep them handy as permanent references. Get a good dictionary and use it!

Above all, remember this: no one can teach you to write. All the instruction in the world is worthless unless you have the earnest desire to learn and to apply what you've learned. All the command emphasis that can be mustered is no good if it falls on uncooperative, unwilling students.

While you're learning to do these things, watch Joe Wise, "thought-projector." He is the officer who by listening, reading *and* writing is vaulting the hurdles to success.

Cut the Frills

by Capt Harold J. Meyer

INFANTRYMEN have been clamoring for increased unit mobility for some time. In some quarters, demands have been pushed for 100-percent mobility for the rifle company and the battle group. Throughout the Infantry School, offices and classrooms have reverberated with expansive phrases like "increased distances dictate speed of movement," or "ride to the distant center of decision," or "capitalize on our increased firepower through mechanization."

Generally, we recognize that future Infantry mobility will take varied forms. The helicopter, the personnel carrier and the zero ground pressure vehicle are combined and recombined on hypothetical battlefields. Not at all hypothetical, however, is the effort which is being made to fit our Infantry loads to the accomplished mechanical facts. Equipment is being examined for possibilities of miniaturization. Redesign studies are being made on existing weapons and materiel with the idea of lessening weight or reducing bulk. New weapons and materiel are being designed to satisfy strict weight and bulk specifications.

In these fields great progress has been made. Compare the present

106mm rifle with its predecessor, the 105mm recoilless, or the 7.62mm M60 machinegun with the water-cooled 1917 model. There are many, many other examples of Infantry experience and engineering skills resulting in a combination of increased capability plus a substantial reduction in mass and weight.

However admirable specific instances of increased mobility through reduction of mass and weight are, it is true that over-all progress has so far only been token. The reason is that we have only begun to tackle the major impediment in the way of Infantry mobility—Infantry luxury.

Too many times, we have handicapped our ability to move by including in our TOEs ponderous gadgets of one kind or another—frills, in a word. Too many times we have paid lip service to mobility and have gone no further. We have overloaded our small Infantry units in the interest of comfort. We have burdened the individual combat soldier with superfluous barracks paraphernalia. We have attempted to subsidize esprit de corps (as if that were possible) by equipping the soldier with a mass of items which are useless in the field. We have maintained an irrational hope that when the need arises we will somehow be able to get all our organizational junk on our vehicles. We puzzle over unit loading plans and yet have shouted down the still, small voice which says, "We don't need it."

In fact, we have risked our combat efficiency because we are not willing to risk our comfort.

We think we have searched for improved mobility. We certainly have pleaded for bigger, faster vehicles. Yet we have not gone all the way toward achieving the rapid movement we need by paring *ourselves* down to a mobile size.

Mobility, after all, is not only vehicles. Nor is it only a frame of mind. It is also—and perhaps primarily—our own inherent ability to move, as represented by our lightness, our adaptability and the simplicity of our organization and equipment. We ourselves must cultivate a fitness for mobility.

And mobility fitness comes from cutting Infantry frills. In the Infantry rifle company, for instance, a host of items which have a questionable function comes to mind—single-bit axes, machetes, general purpose shovels, armorers' tool sets, Lister bags, galvanized buckets, food containers, the field desk, immersion heaters, the barber's kit, the officers' mess outfit, the range field pack, and the kitchen tent itself.

I can already hear the shouts of derision and dismay. "He wants to take our kitchen away from us!" Yes, among other things. The plain fact is that much of our organizational equipment has failed to keep pace with the requirements and possibilities of modern warfare. We still have too much equipment which is designated M1917A1 or M1937, and kitchen equipment is a good example. Kitchen equipment, specifically, has been generally unaffected by the splendid advances made by our Quartermaster Corps in ration storage and preparation. Precooked, superconcentrated foods which require only the most basic handling before serving are available. Such rations require little of the complex kitchen equipment which is now standard. Yet the heavy stock pot and the "cleaver, butcher's" are still with us.

This, of course, is just one example, but it sufficiently illustrates my point: we *can* solve the weight problem if we conceive of it as related not only to a capacity for moving more but the necessity of moving less.

Our TOEs must be given a most critical evaluation and analysis. Do we really need a latrine screen in a tactical unit? Is there actually likely to be someone who, among the bursting shells and flying bullets, will be seriously affected by a certain lack of privacy?

Do we need a spare tire on every single Infantry vehicle? Is our mechanism of resupply, on the one hand, so awkward that it cannot accommodate a reasonable number of tire failures, or on the other, do we anticipate such an extraordinary incidence of blowouts and flats that every jeep and every deuce-and-a-half will be affected simultaneously? Is the enemy using tacks?

Quite seriously, our emphasis should continue to be on compactness and lightness of equipment—but not only new equipment. The equipment we already have must receive the same kind of attention.

We must scrutinize our TOEs closely and continuously so that the equipment we have and the equipment we get is clearly functional and utilitarian, so that there is no duplication, so that we are making full use of the new advances available to us, and so that we ourselves are as "mobility fit" as we can be.

Every bit of weight saved is a bit of mobility gained. Frill-cutting, as I have called it, is not merely a means to the kind of abstract efficiency that makes people save paper clips or pencil leads. It is an essential element of our mobility effort.

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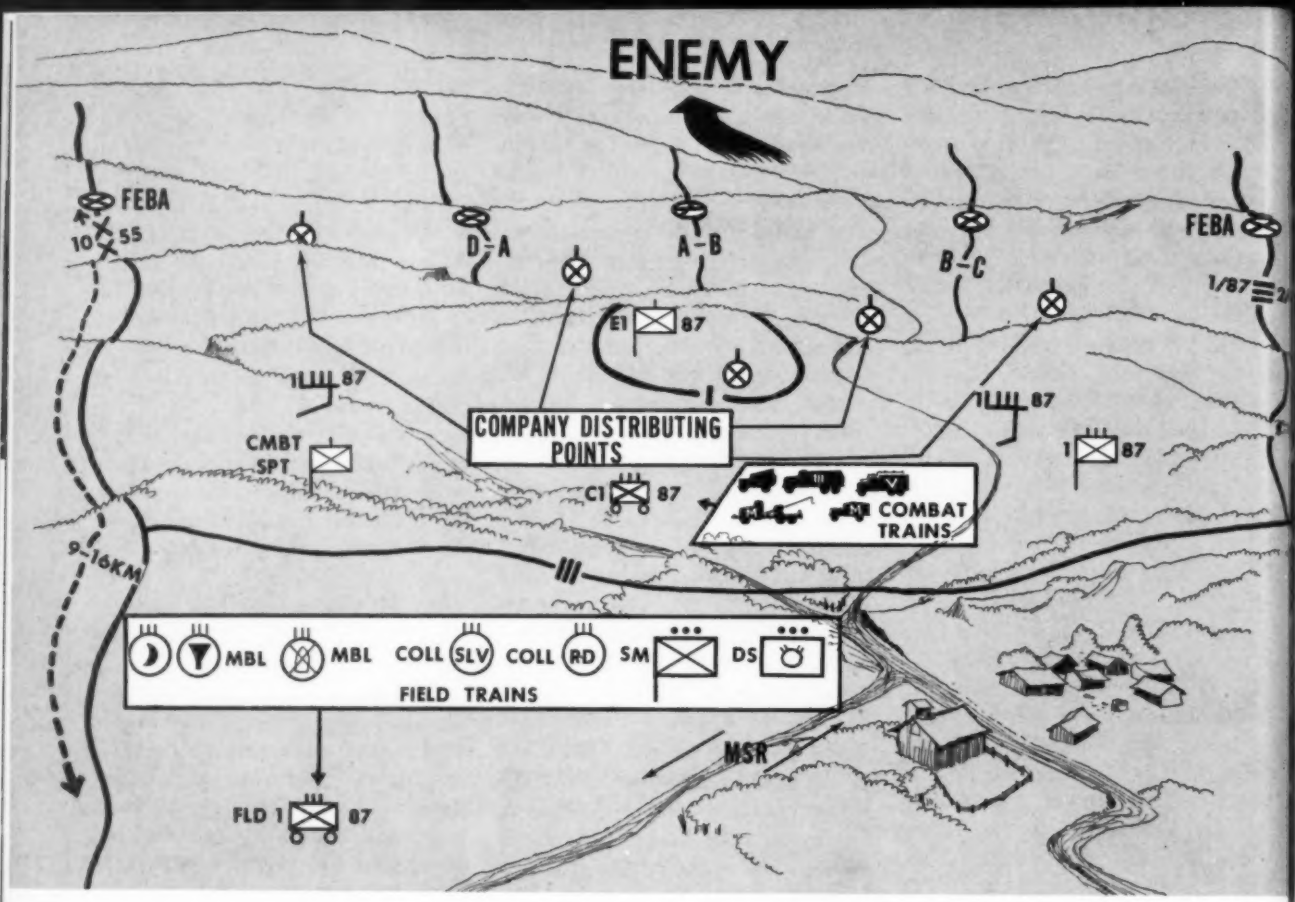
The opinions expressed in these articles are those of the authors and do not necessarily reflect official thinking of the Infantry School.



Battle Group Logistics

Continuous, responsive logistical support matches the reorganized battle group's wide-ranging capabilities.

by Capt Chandler Goodnow

THE BATTLE group is designed to fight. Its organization is oriented forward—toward the man who closes with the enemy. This orientation is particularly noticeable in the logistical back-up of the reorganized battle group. But the keynote here is not just forward orientation but decentralization. The continuous, responsive support the battle group must have to operate under current concepts can be provided only by a logistical organization which leans into the action rather than holding back to the rear.

With the trend in tactical operations tending toward frequent employment of mechanized task forces, certain logistical functions must logically be moved forward in the battle area. Consequently, new doctrine calls for the habitual employment of combat and field trains.

This echelonment of support which now characterizes the battle group logistical system is not new, but it does represent a departure from the system set up for the original ROCID battle group. In describing the new logistical system, it is convenient to talk in terms of what takes place in each echelon, but before this can be done, some background is necessary.

Combat trains, by definition, are those vehicles and accompanying personnel required for immediate support of the combat elements. This means that the combat trains are the forward logistical element, and must

have the capability of resupplying fuel and ammunition, of making emergency vehicle repairs and of evacuating disabled vehicles. Naturally, only the minimum personnel and vehicles necessary to accomplish these tasks are placed forward in the combat trains. The field trains, on the other hand, are farther to the rear and contain the majority of the battle group's logistical elements, including most of the organic supply and maintenance platoon plus supporting units from division. It is also important to know the organization and capabilities of these elements to fully understand how the battle group logistical system works.

The supply and maintenance platoon is organized functionally

The supply and maintenance platoon, a part of the battle group headquarters company is charged with the operation of both the combat and field trains. This platoon, commanded by a captain who is also the assistant S4, is organized into a headquarters, a truck squad and an ammunition squad (Figure 1). Elements of this platoon are found in both the combat and the field trains.

The *ammunition squad,* as its name implies, carries out ammunition resupply for the battle group. To accomplish this job it has a sergeant (E5) squad leader, ten truck drivers, an ammunition specialist and two ammunition handlers, one of whom doubles as a truck driver. Ammunition is carried aboard seven 5-ton and four 2½-ton trucks and on four cargo trailers. (Water tank trailers are pulled by seven of the trucks.) This transport is sufficient to carry the trains' slice of the battle group's basic load.

The *truck squad,* also commanded by a sergeant (E5), has seven drivers who operate 2½-ton trucks. This squad hauls the unit kitchens and other impedimenta, but it may also be used to transport supplies and personnel when its normal load is grounded. Since these seven vehicles are the only ones normally available to the battle group commander for these additional missions, the trucks of this squad will seldom be available to the company commanders for extended use. Used in the transport role, these trucks give the battle group commander the capability of motorizing one rifle company.

The personnel of the *platoon headquarters,* other than the platoon commander, are divided into three elements for operational purposes. Each of these elements performs a specific task: ration distribution, maintenance and supply.

The *ration distribution element* consists only of one sergeant (E5) who operates the Class I distributing point. Augmentation of personnel is required for this element when rations are being received and distributed. Normally cooks will be available for this assignment when kitchens are operating under battle group control.

The *maintenance element,* headed by the maintenance warrant officer, performs second echelon vehicle maintenance for the battle group. The motor sergeant and 13 other enlisted men comprise its working force. In addition to the requisite tool sets and other equipment, the element has two maintenance trucks—a ¾-ton and 2½-ton — and a 2½-ton light wrecker.

The *supply element* is the focal point of all supply operations of the battle group. The personnel of this element, seven enlisted men and the supply warrant officer, prepare necessary formal requisitions and maintain property records. Additionally, this element operates the salvage collecting point and receives and distributes Class II and IV supplies.

Divisional units give added logistical capability

The forward support company of the division Ordnance battalion will normally place a direct support platoon with the battle group. Consisting of a platoon leader and 15 ordnance repair specialists, this platoon is designed to back up the second echelon maintenance effort of the battle group as well as furnishing limited third echelon support. The platoon is fully mobile and stocks selected, fast-moving items of ordnance supply. It is notable that the platoon is equipped

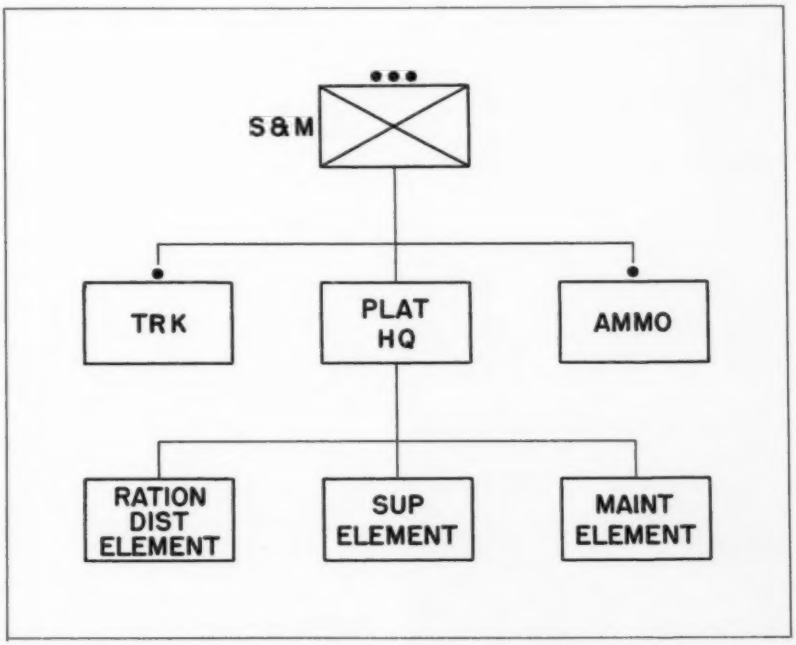


Figure 1. Organization of the supply and maintenance platoon.

When unit kitchens operate in the field trains, hot meals are brought forward to the combat trains or other suitable release points.

with a tracked personnel carrier which will be used to mechanize a repair team. This team will then have mobility equal to the tactical elements it supports.

The division Quartermaster company provides two elements to support the battle group logistical system: gasoline tanker trucks and a collecting and evacuation section from the memorial activities platoon. The gasoline tankers furnish the battle group with mobile Class III distributing points while the collecting and evacuation section operates the recovery and disposition collecting point in the field trains.

Operation of the logistical system

While the foregoing units operate the battle group logistical system, control is vested in the S4. He, of course, is responsible to the battle group commander for all logistical functions of the battle group. To aid him in fulfilling this responsibility, the S4 has two key assistants: the motor officer who controls the combat trains and the assistant S4 who controls the field trains. Naturally, all three of these officers must have proper communication equipment and transport if effective control is to be realized. The S4 is now equipped with a ¼-ton truck with an AN/VRC-18 radio, the assistant S4 has a ¼-ton with an AN/VRC-10 and the motor officer is furnished a ¼-ton truck and an AN/PRC-10 radio. Operating on the battle group administrative net and utilizing any available wire circuits, these three officers closely coordinate the operation of the logistical system. They will also maintain a close personal liaison.

Since the most critical phase of battle group maintenance is emergency repair and evacuation in the forward area, it is only natural that the motor officer should command the combat trains. Although he is also concerned with supply, his main job is keeping the battle group's vehicles, particularly the combat and command vehicles, in running condition. He will ensure that required repairs are made as far forward as possible and that vehicles are put back on duty with minimum delay.

A portion of the maintenance element of the supply and maintenance platoon will be forward in the combat trains to assist the motor officer in this task. In addition, a contact team from the direct support Ordnance platoon will normally be available to back up forward organizational maintenance and to perform limited on-the-spot third echelon maintenance.

As an example of how the maintenance system works, let's say that Company B has a vehicle that has been damaged by a mine. Company B reports this fact to the motor officer or his representative at the combat trains. If the vehicle cannot move under its own power the motor officer will decide whether to evacuate the vehicle to the combat trains or to the field trains, or to send a contact team to the company. This decision is based on his workload, the tactical situation and the repairs needed. If at all feasible, repairs will be effected by the contact teams—either the second or third

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echelon team or both—so that deadline time is minimized. If it is necessary to evacuate the vehicle, it may be repaired in the combat trains or the field trains, depending upon the factors mentioned before. However, if the required repairs are beyond the capabilities of the battle group and the DS Ordnance platoon, the division Ordnance forward support company will be contacted by the Ordnance platoon leader so that further evacuation can be effected.

It should be mentioned here that the combat support company has more maintenance capability than the rifle companies of the battle group and consequently will be supported in a slightly different manner. This company has approximately 30 percent of the battle group's vehicles and is allowed seven TOE maintenance personnel to perform organizational maintenance. However, the company's maintenance capability is somewhat restricted. It is authorized only basic maintenance equipment and therefore must rely on the battle group for such tasks as welding, wheel pulling and tracked-vehicle repairs. Also, the company's forward location precludes the accomplishment of other than repairs of an immediate or emergency nature. Actually, the maintenance personnel and vehicles (one ¾-ton truck and a 2½-ton light wrecker) of this company are best utilized when placed under operational control of the S4 and used to augment the supply and maintenance platoon's maintenance element.

The motor officer as commander of the combat trains will also be concerned with the distribution of supplies, particularly Class III and Class V. Supply distribution is, however, a chief concern of the assistant S4 and his supply warrant officer in the field trains. In effect, both the combat and the field trains are involved in distribution of all classes of supply in varying degrees. This can more easily be seen through a discussion of how the various classes of supplies are handled in the battle group.

Field trains maintenance activities complement the emergency repair performed in the forward area.

Unit distribution of Class III by tanker speeds and simplifies resupply.

Class I supply starts in the field trains with the receipt of rations from division by the ration distribution sergeant. He issues the rations from the kitchens, which will normally be located in the field trains. As meals are

Supply-point distribution requires trans-loading from ammunition squad vehicles to rifle company vehicles in the combat trains area.

prepared, they will be sent forward on vehicles of the truck squad. The trucks may go all the way to the company distributing points or, when this is not feasible, they will deliver the food to company supply sergeants at the combat trains or some other suitable release point. Packaged rations will be distributed in the same manner.

Some small Class II items such as radios, weapons or clothing will be delivered with the rations whenever possible. In like manner, when rations are delivered, salvage items can be picked up and taken to the salvage collecting point at the field trains. When a requirement exists for Class IV items, such as fortification materials, they will be carried as far forward as possible on army or division transportation.

The distribution of Class III is based primarily on extensive use of the 1200-gallon tank trucks organic to the division Quartermaster company rather than the five-gallon cans of past years. The division G4 coordinating with the G3 will attach sufficient tank trucks to the battle group to support its operations. These trucks will draw gasoline from the division Class III distributing point and distribute it to using units by a combination of unit distribution and supply point distribution. For example, if the situation permits, tankers may be sent forward to refuel vehicles on the combat outpost line. In offensive operations they would also refuel units on the objective, if feasible. Every effort should be made to effect unit distribution with the tank trucks. Naturally, this will not always be possible and mobile Class III distributing points in the combat trains may have to suffice. Also, when Class III requirements are not large, the tank trucks will be used as mobile Class III distributing points in the field trains. In most cases it is conceivable that a combination of both systems will have to be used to satisfy all requirements. At any rate, when Class III requirements are high, sufficient tank trucks should be kept in the combat trains to refuel completely the combat elements of the battle group.

Ammunition required to resupply immediate needs is habitually kept forward in the combat trains. When a company requires resupply of Class V, the supply sergeant will make an informal verbal request. If unit distribution is in effect, he radios or telephones his requisition to the combat trains. The combat trains commander will then dispatch a vehicle with the requested ammunition to the company distributing point. Should supply point distribution be in effect, the company requiring ammunition will dispatch a ¾-ton truck to the combat trains. Again, only an informal requisition is necessary.

Stocks of ammunition in the combat trains are reconstituted by sending loaded ammunition trucks forward from the field trains upon request of the motor officer. Empty trucks from the combat trains return to the field trains and are then routed through the division ammunition officer to the army Class V supply point for reloading.

It should be mentioned that the battle group has two additional ammunition trucks besides the 11 in the ammunition squad and at times will have more. The two trucks (2½-ton with 1½-ton trailers) are organic to the combat support company and are used to carry the company's portion of the basic load. Should a tank company be attached to the battle group, it will bring with it 5-ton ammunition trucks from its parent battalion. All of these trucks will normally be integrated directly into the battle group Class V resupply system.

From the foregoing it is evident that an immense amount of coordination and cooperation between the S4 and his principal assistants is necessary for effective operation of the battle group logistical system. But more than this, every person involved in the system, from the battle group commander to the last ammunition handler, must work to make it effective. The logistical means of the battle group, although austere, are sufficient, when augmented by division, to provide flexible and responsive support to the combat elements. This type of support, however, will only be achieved through detailed planning and timely execution.

"FLEXIBILITY"

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Flexibility means "the willingness or disposition to yield." It takes care of the unplanned-for situation, of contingencies and possibilities. Sometimes, however, the flexibility of the combat arms is strained. The unforeseen is simply too unforeseen. In the slightly dramatized account that follows, the kind of monkey-wrench that Infantrymen and Tankers will both recognize was thrown smack into the works of an Armor operation.

by Mr Bill Herman

SINCE the M48 tank is about to be replaced, this story can now be told. The trip of the M48 from the drawing board to the Line of Departure is well known. What happened after it crossed the LD on its first major maneuver in Europe is another story—a story that has been cherished by those few tankers who were tuned in on a certain radio net or were able to get a "relay" during the ensuing years.

Now it can be transmitted "in the clear." The event took place in a forward armored cavalry regiment, during a full-scale NATO maneuver in central Germany. One tank company in one of the recon battalions received first delivery of the long-promised M48s. That battalion took to the field in full-cry: "We've got the tanks—just say 'Go!' and we'll drive Aggressor right into the North Sea!" (or "We'll wash our tracks in the Zuider Zee!").

As the maneuver progressed, each day was one of tense excitement and anticipation of the moment Tank Company would be committed with its fearsome new weapon. And *everybody* waited. Troopers never showed more curiosity in the hourly progress of the play. Truck drivers flagged down liaison officers and mechanics flagged down scout sections (or any vehicle with a radio set). Always the same terse conversation:

"Yet?"

"No, not yet!"

Each time Tank Company moved—carefully and majestically—from one assembly area to another, every tactical and administrative net in the regiment carried the news: "Tank Company is moving forward!" Or the rumor: "Tank Company is being sent in!"

But by the third day it was still "No, not yet!" The moment was never right to let the awe-stricken enemy know what real shock-action meant. (The enemy was awe-stricken because he was on the regiment's net, too, wondering when the Big Weapon would be committed.)

The opportunities to commit came and went as the battalion commander and the S3 agreed and disagreed. The entire staff took violent sides around the most pawed-over situation map in the Blue Army, while regimental and corps radio nets carried thinly-veiled transmissions ending with "No, not yet."

Then suddenly over the net came The Word:

"Heedless Six, this is Hot Trot Six . . . Phaseline Bravo is your Line of Departure—Go! And exploit! Exploit!"

Before Heedless Six could acknowledge, the net was hopelessly jammed, in both the Blue and Red Armies.

"They're in!"

"The Big Horses are loose!"

The radio nets went miraculously quiet a few moments after the electrifying news was passed. All nets were tuned in on the "Heedless" channel, listening for the voice of Captain Handrail, commander of the M48 assault. The rest of the story can only be told in the radio transmissions of the next few memorable moments:

"Hot Trot Six . . . this is Heedless Six. I have crossed the LD at 0946."

"This is Hot Trot Six. Roger. Where are you?"

"This is Heedless Six. I'm in the lead tank."

"This is Hot Trot Six. Excellent. Disregard phaselines. Exploit—exploit . . . Have a big day!"

A pause followed. The pause stretched to a wait. Somewhere a mike switch opened and closed. The switch opened again.

"This is Heedless Six. I am stopped."

"This is Hot Trot Six. Say again after 'I am.' "

"This is Heedless Six. I say again —'stopped!' 'Stopped!' "

"To Hell with radio procedure—what do you mean *stopped?*"

"I said stopped! Dammit — stopped!"

"Where?"

"About half a 'K' from the LD."

"Stopped by what?"

Pause—getting longer.

"Get that? What stopped you?"

Another pause, then: "A ox!"

"Did you say 'ox'?"

"Affirmative—a ox!"

"You mean *an* ox?"

" 'An'—'A'—it's still a damn ox and if I ever . . ."

"Wait! Please! In slow, simple words: what's going on?"

"It's simple. I just crossed the LD on this narrow farm road an' there comes this German burgher with his cart and ox."

"Well, tell him to move!"

"He won't!"

"Why not?"

"It's his road!"

"Well, what's he doing?"

"Just sitting there hollering 'Nein, Nein'!"

"Reason with him. Get somebody to talk to him. You're holding up the assault."

"*I'm* not holding it up! My troopers have unhitched the ox, and they're trying to push him over with their shoulders, but this is the biggest damn ox—I'm going to fire a blank round over his head!"

"No! Stop! You will NOT fire a round, Y'hear? Acknowledge!"

Pause. Dead silence (except for flight leader complaining he's running out of fuel waiting in rendezvous over objective).

"Heedless Six! Acknowledge that you will *not* fire a round at the ox!"

"This is Heedless Six. (Sigh) I will not fire a round at any ox."

"Or *over* any ox."

"Or over any ox."

"How are you doing? What's going on? The ox still there?"

"(Sigh) The ox is still here."

"Well . . . well, what about him? What's he doing?"

The dead pause again.

"Heedless Six—Sam! Where is the ox now?"

"Right in front of my tank."

"What's he doing?"

Mike switch opens—closes.

"Sam!—what-is-the-ox-doing?"

One more pause, then:

"He's . . . he's . . . Oh, Hell—he's licking the front of my tank!"

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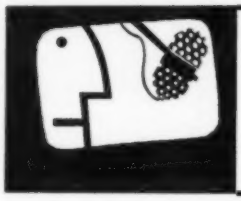

INFANTRY QUIZ

1. In air-mobile operations, the landing plan is based on the:
   (a) air movement plan.
   (b) loading plan.
   (c) plan of maneuver.
   (d) estimate of the situation.

2. What artillery can the battle group normally expect to have in direct support?

3. The effect from a nuclear detonation which produces delayed casualties is:
   (a) thermal radiation.
   (b) blast wave.
   (c) nuclear radiation.
   (d) ground shock.

4. The M59 personnel carrier has two engines, one located on the right and one on the left side of the vehicle. Which engine should be started first and why?

5. Normally, the detachments left in contact from a forward rifle platoon during a night withdrawal consist of:
   (a) one rifle squad, under the command of the rifle squad leader, and approximately one half of the crew-served weapons.
   (b) one third of each rifle squad and all of the crew-served weapons under the command of the weapons squad leader.
   (c) one fire team from each rifle squad and approximately one half of the crew-served weapons, under the command of the senior rifle squad leader.
   (d) one rifle squad and all of the crew-served weapons, under the command of the platoon leaders.

6. In a battle group in position defense, the attached tanks are normally held in a mobile reserve. True or false?

7. When firing on a field firing range at a target located at a range of 75 meters, the firer aims at:
   (a) the top of the target.
   (b) the bottom of the target.
   (c) the center of visible mass.
   (d) none of the above.

8. The primary method for determining range and leads for the 106mm rifle is to:
   (a) estimate by eye and fire for effect.
   (b) fire the major caliber and make sensings.
   (c) estimate using the sight reticle stadia lines and fire the spotting rifle until a hit is obtained.
   (d) estimate using the binoculars and the WORM formula and then fire the major caliber for effect.

9. What is the safety factor applied by the forward observer of the 81mm mortar section when he fires at targets within 400 yards of friendly troops?
   (a) he adds 300 yards to his estimated observer target range.
   (b) he adds 200 yards to his estimated observer target range.
   (c) he attempts to make a first-round hit but is especially careful with his initial data.
   (d) he computes his data and then multiplies by two before sending it to the FDC.

10. The standard types of ammunition currently available for the 3.5-inch rocket launcher M20A1B1 are:
   (a) AP-T and HEP
   (b) HEAT and TP
   (c) HE and WP
   (d) HEAT and HVAP

Answers on page 57

INCIDENT AT YPRES

by Dr. Wyndham D. Miles

THE STORY OF A BATTLEFIELD INCIDENT

THAT "COULDN'T" HAVE HAPPENED

BUT DID . . .

ON THE pleasant spring evening of April 22, 1915, French troops in the trenches at Ypres noticed a yellowish cloud billow upward from the German positions.

They watched curiously as the cloud rolled closer, pushed toward them by a gentle breeze. Then the first wisps reached the parapet and drifted down into the trenches. Tiny molecules of the substance sped along with inhaled air into nasal passages and hell broke loose. Men dropped their rifles and staggered around coughing uncontrollably as their windpipes tried to expel the gas. In a few moments they had forgotten about the war, about their enemies a few hundred yards away, and were struggling over the back edge of the trench trying to reach fresh air.

An officer managed to reach a trench phone and gasp out a few sentences about the rout before his lungs rebelled and sent him stumbling after his men.

The colonel in his headquarters some distance behind the lines thought the officer had gone combat crazy. Then a call from another officer, following on the heels of the first, brought him out of his billet on the run. He yelled at his orderly for a horse and went galloping toward the front. Within a short time he ran into the edge of the gas cloud, now considerably diluted with air. His horse began to buck and the colonel had to slide from the saddle and race forward on foot. All around him panicky men fled for the rear. The colonel could no more stop the mob than King Canute could halt the tide.

On the right side of the French sector, Canadian Infantry had front-row seats as they saw the birth and growth of the strange cloud. From their angle, the low cloud bank appeared greenish-brown below and yellow above where it reflected the rays of the sinking sun. They watched it surge over the broken ground between the opposing armies and into the French positions, and then saw the French scramble out of their lines and rush to the rear.

On the left of the French, Belgian troops were having a time of it. Men in the trenches had seen the gas billow up from the German lines and drift toward the French positions, but they had been curious rather than alarmed. They guessed that shelters in the German trenches had caught fire and that smoke from the conflagration was drifting across the battlefield. Then a patch of the smoke eddied into the end of their line, where it abutted against the French, and they felt a shock like a diver going into icy water. What had drifted upon them they did not know, but they knew it was no ordinary smoke from burning wood. Jabbing their rifles over the edge of the parapet, they blasted away at the ranks of German troops advancing behind the cloud and into the abandoned French trenches.

The Germans passed through the French positions and into the rear areas until they almost reached Ypres. They had punched a hole two miles wide and deep into Allied territory, and they had taken 50 pieces of artillery and 70 machine guns. When they finally came to rest after dark, it was because they had prepared for a short sprint rather than a long, sustained thrust. The door was open and had they mounted a major offensive in the first place, it seems, in retrospect, that they could have gone to the Channel, gaining a great strategic victory instead of a minor tactical success.

The chlorine attack at Ypres was one of the great surprises of the war. Yet the wonder is that it was any surprise at all. The Germans began experimenting with chemical munitions in 1914, and Fritz Haber, the German chemist who conceived the idea of a chlorine gas cloud, sold the idea to General Erich von Falkenhayn in January, 1915. The German Army obtained several thousand cylinders of chlorine from industrial firms—chlorine was a common industrial chemical—and ordered many thousands more. In February the Germans began emplacing the cylinders southeast of the Ypres salient. After waiting in vain for a month for the wind to blow in the proper direction, they

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decided to emplace more cylinders on the north of the salient. Toward the end of March, a British raiding party captured a German officer who told them of the gas cylinders on the south, and that the gas would be released on a favorable wind. The sergeant in charge of the party led a patrol a few days later to verify the information and found gas cylinders as the officer had stated. Thus while the British in that immediate sector had important information, nothing seems to have come of it.

Around the same time, French Infantrymen captured soldiers who stated that the Germans had a large number of gas cylinders on hand for an attack and that the operators possessed protective devices. The French Tenth Army printed this news in its information sheet of March 30, but it seems not to have aroused any alarm.

During the night of April 13-14, a week before the blow fell, a deserter crawled into the French lines and, when questioned, gave the location of German artillery and troop units and told of an impending gas attack. According to this man, the Germans had buried cylinders of gas in the trenches and were only waiting a favorable wind before opening the valves. He confirmed his story by showing a crude gas mask that had been issued to protect operators from accidentally inhaling the gas. (Fifteen years later General Ferry, commanding the French 11th Division at Ypres, published an account of this incident and mentioned the deserter's name, August Jaeger. The German Government prosecuted Jaeger for treason and in 1932 he was sentenced to ten years imprisonment). General Ferry believed the story, warned his brigade commander in the sector, and recommended that some of the frontline troops be pulled back, that the artillery shell the cylinder emplacements, and that respirators be devised. Ferry also dispatched warnings to the 28th British Division at Ypres, the Canadian Brigade in Boesinghe, the 20th French Corps, and the Groupe d'Armees du Nord. A few days later Ferry's superiors cautioned him not to take the gas warning seriously, reminded him he had no authority to communicate directly with the British and Canadians, and told him that the distribution of troops in the trenches was fixed and could not be altered.

If the report of German protective devices needed further confirmation, it was provided by the Belgians who learned that the Germans possessed crude protectors made of cloth and saturated with some compound. Belgian spies even ascertained that the Germans were having 20,000 respirators made in Ghent. And on top of this they discovered that men of the German 26th Reserve Corps, which was to take part in the gas attack, were being trained to handle gas cylinders.

On April 17, five days before the gas attack, the British stormed a position known as Hill 60 where cylinders were in position, but the British either ignored the cylinders or neglected to examine and report their presence.

Seldom in warfare had an army been so amply warned of an impending attack and ignored the signals. What happened?

Certain guesses seem obvious. Some officers may have been afraid of being ridiculed if they accepted the reports of a gas attack seriously. Possibly other officers felt that they had enough to worry about without considering a new mode of warfare. A few may have had the ostrich philosophy—hide your head and it will go away. And no doubt there were officers who thought that the whole idea was impractical. In defense of the latter, it must be noted that ideas on chemical warfare had been considered by intelligent men in the leisure of peacetime and had been dismissed as being impractical—the fate, for example, of Lord Dundonald's plan for using sulfur dioxide gas in the Napoleonic Wars and the Crimean War. Aside from guesses, there is evidence that the reports were considered by some as deliberate ruses conceived by the Germans to prevent the French from withdrawing troops from Ypres and sending them to Arras, where an offensive was preparing.

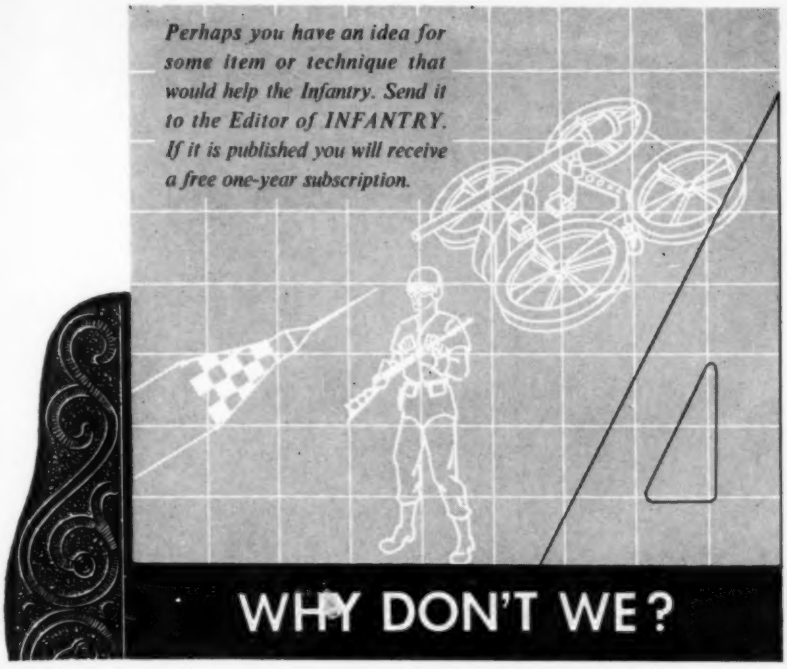
Whatever the reason for ignoring all the reports of the impending gas attack, the Allies were completely and overwhelmingly surprised. Only the circumstance that the German Army had been content to plan the capture of just a few miles of ground seems to have saved the Allies from a disaster. The Germans, in defense of their failure to exploit their success, stated that they had not scheduled an all-out offensive because they needed troops in Russia and that the gas attack at Ypres was only in the nature of a diversion to keep the Allies busy. At any rate, the Germans missed their opportunity. The Allies tied their lines together after they recovered from the shock and never again broke completely under a gas attack.

But the lesson, I think, is plain: there is a great difference between information and intelligence.

Intelligence efforts reside only partly in information collection. Once information has been obtained, it must be evaluated and interpreted and on this basis conclusions must be drawn. Only then do we enter the realm of military intelligence, for unless it is processed and used, information remains merely that—information.

That there was no greater disaster at Ypres was a happy accident. Such accidents are rare. And, in fact, they are dangerous, because they obscure our possible weaknesses.

We survived one Ypres. We must make sure there is no other.


Perhaps you have an idea for some item or technique that would help the Infantry. Send it to the Editor of INFANTRY. If it is published you will receive a free one-year subscription.
WHY DON'T WE?

. . . issue a colored smoke round for the 81mm and 4.2-inch mortars. When a target is obscured by the smoke of other supporting weapons, it is often difficult, if not impossible, for a mortar forward observer to spot his own fire. A colored phosphorous round would prevent lost rounds and enable the FO to adjust fire more rapidly.

In addition, a colored phosphorous round could be used as a signal to lift or shift fires on the objective and to fire final protective fires.

MSgt O. G. Hibbert

. . . place red and green translucent filters in the flashlight MX991/U. These filters could be stored in the base of the flashlight along with the white filter now issued. This would make the flashlight more readily adaptable to night-signaling uses. The flashlight with the red filter over the lens could be used at night without impairing night vision.

Capt Lee D. Ellis, Jr.

. . . develop a collapsible stretcher. Such a stretcher could be made from telescoping aluminum tubes and a lightweight nylon fabric. It should compact into a small package that could be easily carried by a man in addition to his normal load. In this respect it should also be as light as possible. A stretcher such as this could be made standard issue but even as a special item it would be invaluable in frontline combat units and on patrols — particularly now that there are no more litter bearers or platoon aidmen in the battle group.

Lt Ralph C. Gauer

. . . package spare parts for Infantry weapons in clear, tough, simple-to-open plastic envelopes. The heavy brown paper bags and other wrappings now used do not lend themselves to accurate and rapid identification of the parts. Plastic envelopes, on the other hand, would aid preservation and identification with a consequent savings in parts and money.

Armorer, Infantry Rifle Company

. . . remove all insignia and identifying marks from field uniforms. This would serve to make the uniform easily camouflaged and would help to deny the enemy order-of-battle information. Rank could be indicated with dull black pins and if name tags are necessary they should be detachable. Such a regulation would result not only in personal savings, but a more uniform Army as well.

Sgt Stephen H. Gregory, Jr.

. . . make the task of pulling the safety pin and throwing the grenade a one-hand operation. Presently, pulling the pin means fumbling with a rifle, carbine or radio and consequent loss of precious seconds. Of course the rifle may be tucked between the legs or the pin pulled with the teeth. However, one option leaves you defenseless and the other requires teeth seldom found outside of Hollywood productions. A hook (such as is presently used to fasten the pack harness to the cartridge belt) affixed to the belt about two inches from the buckle would solve the problem. When a grenade is needed in a hurry the soldier simply removes it from his ammunition pouch, hooks the pull ring on his belt hook, pulls across his body and throws. This swift, one-handed operation is accomplished without relinquishing the grip on the weapon.

Capt W. C. Louisell

RECONDO

A New Name In Rugged Soldiering

by Lt Harold C. Lyon, Jr.

AT THE 101st Airborne Division Recondo School, a Ranger qualified cadre is passing on its know-how to hundreds of NCOs in the Division. Furthermore, these NCOs are instructing the troopers of their units in the skills gained at the School.

The term "Recondo" is derived from *recon*naissance and *do*ughboy, and serves as a reminder to the soldiers of the 101st that reconnaissance and the time-honored spirit of the doughboy remain decisive factors in battle.

The Recondo School utilizes all of the training methods of the Ranger Course and, in addition, takes advantage of its students' airborne status by having two combat-type jumps in the course of instruction.

In the fall of 1958 a requirement was established in the 101st for a way to train the individual squad leaders and fire team leaders of the Division in advanced Infantry skills —skills which would enable the Airborne Infantryman to do as he did in Normandy on 6 June 1944; to move individually or in small groups in unknown territory, and to accomplish his mission against a superior enemy force. The goal was at least three men in every squad in the division trained in Ranger-type skills.

The Ranger Course at Fort Benning held no solution as it is an eight week course and only a limited number of NCOs from the Division could attend in a year. Similar problems confront all units in the Army regarding many of our Army schools. With today's fast turnover in personnel, it is difficult to train sufficient men in advanced skills in schools not organic to the unit. However, a requirement placed upon all graduates of Army schools is that they be prepared to teach their school-acquired

skills in their parent units. Logically, the practical solution to the Division's problem was to use Army school-trained personnel—in this case Rangers—in an organic school. The graduates in turn could pass on their skills to every man in their unit. Thus it was that the 101st instituted a local school, of shorter duration than the Ranger Course, but which stressed the same fundamentals.

One of the difficulties in starting a project like this is finding the man to run things. For commandant of such a school, a man of extraordinary background and character is essential. The Recondo School was fortunate in having as its first commandant Ranger-qualified Maj Lewis L. Millett, famed for action in Korea and holder of the Medal of Honor.

The other cadre, all Ranger-qualified, were selected and put on special duty from their parent units. It was found that four duties—commandant, assistant commandant (administrative officer), tactical officer, and aggressor control officer—could best be filled by commissioned personnel. The more senior of the School's 20 NCOs hold jobs as sergeant major, tactical NCO, operations sergeant, and committee heads of the Mountaineering, River Crossing, Patrolling, and PT Committees. The remaining NCOs serve on the various committees and all accompany patrols as scorers. Normal rotation and reassignment necessitates an understudy program so that new cadre may learn the job of each instructor leaving the school at least a month before his departure.

With a new class starting every two weeks, enough men are trained to satisfy the Division requirement for three graduates in every squad. The two-week cycle is convenient for an additional reason—once every two months each battle group must supply details for post support (thus not participating in tactical training for a two-week period) and this is the ideal time for its personnel to attend the Recondo School. Each battle group picks 50 of its squad and fire team leaders to report as a class. Further, selected Engineer, Medical and Artillery students attend each session. The school is limited, of course, to non-Ranger-qualified personnel.

Lt Harold C. Lyon, Jr., was graduated from the United States Military Academy in 1958. He attended the Basic Infantry Officer Course at Fort Benning, and later the Airborne Course and the Ranger Course. Lieutenant Lyon was then assigned to the 501st Infantry of the 101st Airborne Division as a rifle platoon leader. He is now on special duty as a member of the staff of the 101st Recondo School.

Each battle group provides its own reconnaissance platoon for aggressors, its own mess personnel for feeding the students and cadre, and its own equipment to include weapons and transportation.

The aggressor plan is prepared in complete detail to ensure that each class encounters similar situations. It includes exact locations, times, and number and action of aggressor personnel—even the number of rounds of ammunition to be fired in each situation. Further, the cadre aggressor control officer handles and coordinates all aggressor play to ensure that desired actions occur and to prevent overly "decisive" engagements.

The first five days of the course take place on the Fort Campbell post proper. Here physical condition is brought to a peak with some of the less commonly used types of PT: combatives, guerrilla exercises, relays and aggressive games. The students are further conditioned by five hours of unarmed combat and long runs. Also, each man must complete certain confidence tests similar to those used in the Ranger Course. One of these is the classic "death slide"—employing a 500-foot cable strung from the top of a 100-foot tree to an island in a creek. The student must climb the tree and then, sliding down the cable on a pulley, drop into the water on command. The confidence tests are designed as a reminder that mastering the "impossible" is really a matter of mustering the courage to try. Eight hours of river-crossing instruction are in the curriculum and these include the construction and use of a poncho raft and one-, two- and three-rope bridges. Land-navigation and map-reading skills are stressed throughout the entire course, especially during the combat phase. Moreover, prior to parachuting into aggressor territory on patrols, the student is given intensive classes on map reading and escape and evasion, and undergoes a comprehensive map reading examination.

Instruction given during the first five days of the course (survival, patrol orders, patrol tactics, L20 parachute techniques and first aid) comes into practical use on the sixth day when the entire class makes a combat-type jump into aggressor territory to establish a patrol base. The remaining ten days of the course are given to strenuous patrols launched from this patrol base to points deeper in enemy territory. Orders for the required seven reconnaissance and combat patrols are given the students at the patrol base or at clandestine bivouac areas. There selected patrol leaders plan, give orders for, and then lead their patrols in much the same manner as in the Ranger Course. The students must coordinate with Artillery representatives, plan artillery support and make aerial reconnaissance.

Each student in every class is graded by a Ranger-qualified NCO "lane grader" on three different phases of patrolling—the planning phase, the en-route phase and the objective phase. Basic techniques are

stressed throughout the patrols, and each student is counseled on his performance so that he may understand and correct his weaknesses.

Aggressor action is violent, and must be met with violent counteraction by the students. The enemy situation is continuous and is developed as each patrol is completed and patrol-members are debriefed. Thus, when Recondo long-range reconnaissance of enemy positions reveals guided missile sites being installed, a night jump from an L20 aircraft starts patrols off on a combat mission to destroy the missiles. Partisans assist the patrols and sometimes betray them when they are least prepared to be let down. Enemy bunkers are knocked out, and convoys are ambushed. There is little chance for sleep in this fast-moving, combat-like situation, and by the last three days of the course, physical stamina is at a premium.

The last patrol is a 30-mile "prisoner snatch." The students are organized into one patrol, and each man must study carefully and understand every detail of the plan as it is presented with briefings and aerial photographs. The situation is established that the general commanding the aggressor 10th Fusiliers has been reported to be quartered in a village 30 miles from the patrol base. This village is actually the combat-in-cities training area, and the students must take the town from an aggressor platoon, and then physically wrest the general from his determined guards. The guards are augmented by cadre of the Recondo School and action is sometimes violent before the attackers get away with their prize. The action is not over yet, however. The patrol's instructions are to meet a partisan who, unless he is prevented from doing so, will lead them into a trap. The students who are captured are led to a POW compound where they are tested on their resistance to interrogation. Live snakes (among other techniques) are used to encourage the students to give up information. Since the men are highly keyed up throughout this problem, resistance often takes violent and surprising forms.

The normal patrol operates under established patrolling doctrine. However, many new ideas have been discovered and developed. One idea advanced at the Recondo School is the Recondo "patrol of opportunity." This patrol, supplementing the recon and combat patrols of present Army doctrine, allows its leader to raise as much havoc in an assigned enemy sector as possible by taking action against any targets of opportunity which present themselves. Action may range from a few rounds of harrassing fire to a full-scale raid. This patrol depends upon what the situation allows instead of what the mission dictates. It creates a need for and allows patrol leader imagination and initiative such as every battlefield demands. This offensive-type patrol, which capitalizes on the inherent aggressive nature of the American soldier, is now one of the seven patrols which each class must conduct.

The 101st finds that most students aggressively live up to the hallmark of initiative which their forebears have set for them. However, standards must be kept high if the demanding goals of the Recondo School are to be fulfilled. A system of grading requires each man who does not achieve 620 points out of the possible 1000 to appear before a graduation board. This board, made up of senior-NCO cadre, recommends to the Commandant (whose decision is final) disposition of any student of doubtful ability. If the vote is favorable, the man is pronounced a full-fledged Recondo and is awarded the coveted Recondo brand which he wears on the right breast pocket of his fatigues and on the rear of his helmet. If he shows good attitude and character, yet lacks experience, he is transferred without prejudice to the next class his battle group attends. Men with a poor attitude and those who do not meet the standards on their second opportunity are disqualified. Students who are injured or physically disabled are allowed to reenter the course upon recovery.

Those who would sacrifice realism for safety will look askance at the hazardous, combat-like conditions which exist throughout the course. The Ranger Course at Fort Benning has this same problem. Yet, the 101st feels that to prepare a man for the dangers of combat, the ultimate in realism must be achieved in training. Accordingly, aggressors are directed to make vigorous physical resistance, and students must aggressively apply their knowledge of unarmed combat to fulfill many of their missions. The combat-type jumps on unmarked drop zones are perhaps more rugged than any others in the Army today. Injuries are sustained and frequently men are scattered off the drop zone; however, this is to be expected in combat and should be prepared for in training.

Much is covered in the fast-moving two-week course; however, the fundamentals stressed are vital.

In the words of Brig Gen S.L.A. Marshall, "There's a new word in the United States Army. Recondo. That's the label given the modern squad or fire team leader who has passed his final exams in the college of toughness. Behind the label is the ideal, push soldiers harder than they've ever been pushed. Teach them that no natural obstacles, such as a broad river or sheer cliff, may stop them. Give them as much cross-country ruggedness as any Ranger-trained lieutenant . . . ."

What the 101st has done, other Infantry units can do. With minor revisions in the 101st program, any unit can utilize its Ranger-trained personnel to raise the standards of its key leaders to the levels of initiative, daring and will-to-win demanded of the modern Army.

NOTE: For additional information you are invited to correspond directly with the Commandant, Recondo School, 101st Airborne Division, Fort Campbell, Ky.—Editor

YOUR INFANTRY CAREER
(Continued from page 27)

war colleges. An officer must serve one year on active duty after graduation from the Command and General Staff College in order to be eligible for voluntary retirement. Exceptions to this policy may be granted in instances of hardship or for the convenience of the Government.

QUESTION: Are there any restrictions on the voluntary retirement of officers serving overseas?

ANSWER: Yes. An officer, regardless of component, who departed for overseas duty on or after 1 August 1959 is not eligible to retire voluntarily until he completes the prescribed tour for the overseas area of assignment. Exceptions to this policy may be granted in cases where the officer's retirement request is supported by valid reasons.

QUESTION: Are there any restrictions on the unqualified resignation of an officer serving overseas?

ANSWER: Yes. An officer who departed for overseas duty on or after 1 March 1959 is not eligible to resign until he completes the prescribed tour for the overseas area of assignment. Exceptions to this policy may be granted in case of extreme compassionate circumstances.

QUESTION: Can an officer be selected for Regular Army if he is in an overstrength year group?

ANSWER: Yes. Year-group overstrength does not preclude the selection of qualified individuals for appointment in the Regular Army. It does, however, cause a more rigid application of the selection standards. This means that meeting the minimum standards is not sufficient to warrant selection.

ANSWERS TO INFANTRY QUIZ *(See page 50)*

1. (c) Based on the plan of maneuver, the landing plan indicates the sequence, time and place of arrival of the troops in the airhead and the control measures to be used. (Chap 3, Sec IV, Par 53, FM 57-35, June 1958.)

2. A howitzer battalion will normally be in direct support of each committed battle group. This howitzer battalion consists of a headquarters and headquarters battery, one 105mm howitzer battery and one 155mm howitzer battery. ("Tactical Employment of the New Division Artillery," *Artillery Trends,* March 1959).

3. (c) Casualties from nuclear radiation increase over a period of time as the effects of the exposure cause vomiting, diarrhea, prostration, lack of appetite, fever and internal complications. Dependent upon the amount of radiation received, the initial sickness may disappear and be followed by a latent period during which the patient appears to be free of symptoms. Then, also dependent upon the radiation received, the sickness may return followed by either recovery or death. (Par 26, DA Pamphlet 39-1, 20 May 1959.)

4. The left engine is started first because the generating system is driven by that engine. If the right engine is operated alone, the entire electrical drain falls upon the battery and may completely discharge it. (Chap 2, Sec III, Par 53b, and Chap 3, Sec IX, Par 126a, DA TM 9-7002, March 1954.)

5. (a) Normally, at platoon level, one rifle squad is left in each platoon area of the forward rifle company. Approximately one half of the crew-served weapons in the platoon area remain with the detachments left in contact. The rifle squad leader commands the platoon detachments left in contact. (Chap 5, Sec II, Par 173a, b, d, FM 7-10, January 1959.)

6. False. Normally, at least one tank company is attached to a forward battle group in the position defense. Some of the attached tanks are employed laterally and in depth throughout the forward portion of the battle area. Tanks are located in or near rifle platoon positions. The remainder of the tank company is usually held as a part of the reserve. (Chap 6, Sec IV, Par 176, FM 7-40, August 1959.)

7. (b) The proper aiming point is the bottom of targets at ranges of 75 and 175 meters and approximately the mid-point of targets at 300 meters. Since targets on the field firing range are not camouflaged, it is necessary to have the firer aim a little high on the 300-meter targets. This aiming point is then approximately equivalent to the lowest edge of a partially camouflaged target. (Chap 4, Par 25a(1), FM 23-71, September 1957.)

8. (c) The spotting rifle is the primary means for determining range and leads for the 106mm weapons system. Normally, the gunner will estimate the range and leads to the target using stadia lines and then fire the spotting rifle until he obtains a hit. (Chap 7, Sec IV, Par 118a, FM 23-82, June 1958.)

9. (b) The forward observer adds 200 yards to the estimated range as a safety factor when firing within 400 yards of friendly troops.

10. (b) Ammunition for the rocket launcher is classified according to the type of rocket head and includes high-explosive antitank (HEAT) and practice rockets (TP). Each rocket is about 23½ inches long and weighs about nine pounds. It has a maximum velocity of about 334 feet per second and a maximum range of about 900 yards. (Chap 4, Par 25b, FM 23-32, April 1956.)

WHAT'S NEW FOR INFANTRYMEN

Changes • New Developments • Items of Specific or General Interest to Infantrymen

Hydroplane DUKW.

FLYING DUCK

A hydroplane version of the Army's DUKW is now undergoing tests. Capable of speeds in excess of 40 miles per hour, the Flying Duck rises four feet out of the water at top speed.

The Flying Duck, which is powered by an aircraft gas-turbine engine, employs two hydrofoils in the forward end and a single one in the rear.

MIDDLE-EAR PROTECTION AGAINST DEAFNESS

Basic research into natural defenses against blast-deafness indicates that a harmless noise sounded a split-second before gunfire can alert the middle ear to "turn on" its built-in hearing protection.

The finding suggests the possibility that shells or guns may be designed to produce a protective noise automatically just before firing to give crews and others immunity from such deafness.

The protective noise would trigger what is called the "acoustic reflex" to tighten two middle-ear muscles and thus reduce sound transmission to the inner ear.

Experiments have indicated that protection from gunfire deafness can be achieved by sounding the harmless conditioning tone 200 thousandths of a second before firing and continuing it until the firing is completed.

WEAPONS-LOCATING RADAR

The AN/MPQ-32 weapons-locating radar, now under development, will locate hostile artillery sites at long range and establish a fix on their positions.

The high-precision AN/MPQ-32 will be employed from forward combat areas. High-speed computers will process the data it collects to provide immediate counter-fire guidance.

AIRBORNE CRANE-SHOVEL

An airborne crane that can be air-delivered by parachute in forward areas has been developed to meet the need for lightweight, yet rugged, construction equipment.

Not only is the crane air transportable and air droppable, but it can lift more than its own weight. It tows readily at convoy speeds, has a self-propelled speed of 8 miles per hour, and can be converted to 3/8-cubic-yard clamshell, dragline, and shovel front operation.

Plastic foxhole cover.

FOXHOLE COVER

A plastic-dome foxhole cover has been developed to provide quick overhead protection for the Infantryman. When covered by a foot and a half of soil, the cover has a structural strength equal to a 400-pound solid-timber cover.

The domes are designed to "nest" together like saucers, for space-saving in transportation and storage.

M67 Medium Assault Weapon.

FLIGHT NAVIGATION SYSTEM

A lightweight radar navigation and flight instrument system which will allow all-weather operation of planes and helicopters without assistance from ground-based radar or other existing navigation guides is being developed for the Army.

A prototype of the system, AN/APN-118, will be tested at Fort Rucker. The system indicates the plane's exact position and the direction of its flight by means of a moving pointer on a nine-inch-square map of the flight area. Because it allows operation entirely independent of external aids, the AN/APN-118 provides Army air with much greater freedom of movement.

Weighing half as much as conventional systems, the new 120-pound flight navigation device includes a "free gyro" which provides accurate guidance when magnetic reference is unreliable, as in polar regions.

AIR-DROPPABLE WATER PURIFICATION UNIT

A new air-droppable water purification unit will provide drinking water in areas not readily accessible to truck-mounted units.

The 600-gallon per hour unit is one of a family of three mobile units designed to purify radioactivity-contaminated as well as ordinary polluted water. Sectionalized to facilitate handling and transport, the airborne unit includes a water treating section, a water filtering section, and operating accessories such as pumps, tanks, hose, generator and chemicals.

Polluted water can be pumped into the unit and chemically and physically treated and discharged as potable water in less than 25 minutes. Only one operator is required.

MEDIUM ASSAULT WEAPON

A newly developed shoulder-fired 90mm recoilless rifle will arm the Infantryman with the close-range punch of a medium tank.

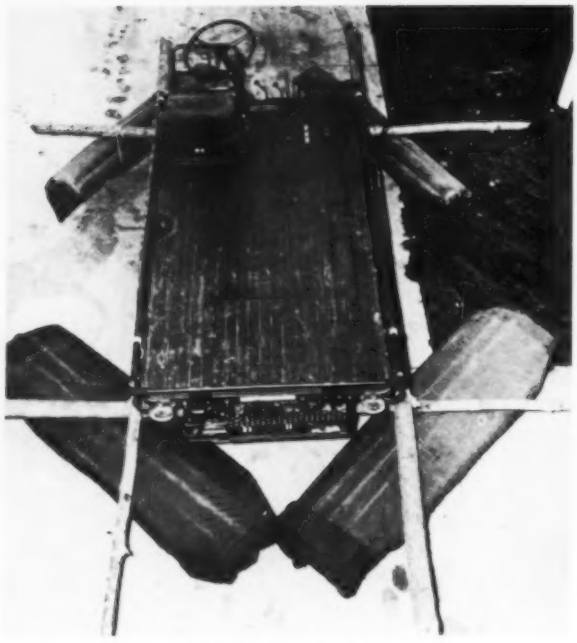
The 35-pound four-foot long rifle, known as the Medium Assault Weapon (MAW), is designed to be employed by a team of two Infantrymen, but in emergencies can be carried, loaded and fired by one man.

The MAW is devastatingly effective against close-range targets such as tanks, massed personnel and fortifications. It can fire a shaped-charge shell which is effective against the heaviest armor known, and has an effective range of 500 yards—more than twice the range of the 3.5-inch bazooka.

HIGH SPEED CABLE

A technique for helicopter use in laying a new multichannel telephone cable at speeds up to 100 miles per hour has been developed. When the associated telephone multiplex equipment now under development is available, it will add new speed and versatility to combat forces. The new technique employs a compact package carrying 10 miles of cable packed to prevent snagging at high payout speeds.

M67 MAW Round.



"Amphibious" Mule.

"FLOATABLE" MULE

The 101st Airborne Division "swims" the 900-pound mechanical mule across streams on a frame of four three-inch poles resting on four rolled-up air mattresses. Thus, the versatile mule is made even more versatile by applied ingenuity.

XM443E1 TESTED.

The Ground Mobility Department of the United States Army Infantry School recently commenced an evaluation test of the carrier, convertible, 3/4-ton XM443E1. This vehicle is one of the current platform-type loadcarriers being developed by civilian contractors for the Army. The evaluation tests seek to determine how this new vehicle fills the role of a weapons carrier, troop carrier, communication and reconnaissance vehicle.

STRAC SHIPPING CONTAINER

A lightweight, low cost, expendable shipping container has been designed for use by STRAC (Strategic Army Corps) units. The containers will be prepacked with organizational and individual equipment and stored in readiness for movement on short notice. It is expected that they will provide a 60-percent reduction in packing materials as well as a savings in time and weight.

Constructed of weather-resistant, triple-wall corrugated fiberboard, the reusable containers can be readily transported in aircraft or slung from helicopters. For surface transport, six containers will fit into the 365-cubic foot steel CONEX container.

AIR-TRANSPORTABLE SERGEANT HAS BRAKES

The new 36-foot Sergeant missile, which is capable of carrying nuclear and other warheads, can be air-transported anywhere in the world. It approaches conventional artillery in mobility, ease of operation, speed of emplacement and displacement, and simplicity of servicing and firing.

The Sergeant, a solid-propellant missile, is equipped with drag brakes—fins or vanes which can be extended from the body of the missile to provide in-flight braking. In liquid-propellant missiles, a cut-off valve interrupts fuel delivery to the motor at a predetermined time to establish the missile's range. This cut-off principle cannot be applied to solid-propellant missiles, but the newly developed drag brakes slow the missile down when necessary, to ensure that it drops precisely "on target."

The Sergeant's guidance system is invulnerable to all known enemy countermeasures.

S60 Flying Crane.

FLYING CRANE

The first testbed of the S60 Flying Crane is undergoing initial tests for suitability of configuration. The pilot's cabin in the nose allows full 360-degree visibility, and a rotating seat, with controls both forward and aft, facilitates maneuvering during in-flight pickups and deliveries.

S60 loads will either be attached directly to the fuselage or sling-hung underneath it. A built-in winch allows the pilot to pick up inaccessible sling loads, and then draw them up to the proper distance from the fuselage. Since the winch is located directly below the rotor transmission, center-of-gravity problems in loading are eliminated. In addition, locking-points for attached loads are

so located that attached loads will always meet the aircraft's center-of-gravity limitations.

The S60 configuration allows a greater payload than standard helicopter configurations of equal power. Time is saved not by greater flying speed, but by versatility in loading and unloading. Pre-loaded packages, pallets or personnel pods can be picked up and delivered without holding the aircraft at take-off and landing points.

Today's S60 is essentially a new airframe constructed around the heart of the H37. In the future, the Flying Crane will be powered by two turbine engines, and will have an improved rotor head and blades, and a tricycle landing gear. Lift capacity expected is in the eight to ten ton range.

YAC1 Caribou.

ARMY ACCEPTS CARIBOU

The YAC1 Caribou, a transport aircraft capable of carrying a platoon of Infantry from rear areas to improvised air strips in forward battle areas, has been accepted by the Army.

The Caribou, made by a Canadian aircraft corporation, will lift 32 passengers or three tons of cargo. It is designed to operate off short, rough fields or improvised strips, and has an extraordinary minimum flight speed of 70 miles per hour. The YAC1, which has a range of 1400 miles, will be tested at various Army installations throughout the United States.

Instructional Aids

Monthly List of Instructional Material

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***Infantry and Airborne Division Battle Groups.** An instructional text covering Infantry division battle groups including organization, offense and defense, retrograde and breakout operations, airborne operations, fire support, task forces and troop leading procedure. $1.25.

***Rifle Company, Infantry and Airborne Division Battle Groups.** An instructional text covering tactical movements, offense and defense, retrograde operations, airborne operations, estimate of the situation, troop leading procedure, operations orders, combat formations and battle drill. $1.00.

***Garrison Supply Handbook.** A handbook covering property and procurement, property records, relief from responsibility, inspections and inventories. $1.40.

Signal Operating Instructions. An SOI published for U. S. Army Infantry School resident and extension course instruction only.

Standing Signal Instructions. An SSI published for U. S. Army Infantry School resident and extension course instruction only.

***Principles of War,** 6010-A1. Integrated conference and practical exercise illustrating the nine principles of war by use of examples and discussing effect of nuclear weapons on principles. $.25.

Fundamentals of Airborne Operations, 6111-I4. Integrated conference and map exercise covering characteristics and types of airborne operations, familiarization with terms, comparison of parachute assault, transport,

and helicopterborne operations, and tactical planning at company and battle group level.

Elements of Combat Intelligence, 6202-B4. Integrated conference and practical exercise covering intelligence elements of weather, terrain and enemy; preparation of terrain analysis; collecting and reporting of information; the intelligence cycle and an orientation on the Aggressor Army.

Introduction to Combat Intelligence, 6204-I2. Integrated conference and practical exercise covering the intelligence duties and functions of battle group S2, organization of the Infantry division and battle group intelligence sections, and the intelligence estimate.

Introduction to Combat Intelligence, 6205-A2. Integrated conference and practical exercise covering duties of battle group S2, organization of Infantry division and battle group intelligence sections, intelligence estimate and production and use of combat intelligence.

Introduction to Combat Intelligence, 6207-B1. Conference covering production of combat intelligence at battle group level and below with emphasis on intelligence organization and duties of intelligence personnel.

Tactical Study of Weather and Terrain, 6210-A3. Practical exercise covering form and content of weather and terrain studies, influence of weather and terrain on tactical operations, critical terrain, obstacles and avenues of approach.

Weather and Terrain, 6212-I3. Integrated conference and map exercise covering the effects of weather and terrain on military operations.

Enemy Indications and Capabilities, 6215-A3. Integrated conference and practical exercise covering organization and tactical doctrine of the Aggressor rifle division, determination of enemy indications and relative probability of adoption of enemy capabilities.

The Enemy, 6216-I2. Integrated conference and map exercise covering organization and tactical doctrine of the Aggressor rifle division, determination of enemy indications and relative probability of adoption of enemy capabilities.

Direction of the Collection Effort, 6220-A4. Practical exercise on the purpose and content of the collection plan, determination of enemy indications, selection of collecting agencies, designation of data for submission of reports and use of information received from collecting agencies.

Collection of Information, 6222-I4. Integrated conference and map exercise on collection planning, including sources, collecting agencies, collection plan and collection responsibilities of battle group S2.

Production and Use of Combat Intelligence, 6228-I6. Integrated conference and map exercise covering combat intelligence in battle group operations. Includes preparation of intelligence estimates.

Combat Surveillance, 6232-A2, I2. Integrated conference and practical exercise on organization and employment of battle group radar section and Infantry division aerial surveillance platoon, characteristics of electronic surveillance devices organic to Infantry division and the intelligence officer's responsibility for surveillance.

Counterintelligence, 6234-A1. Integrated conference and practical exercise covering counterintelligence planning and safeguarding military information.

Counterintelligence, 6235-I1. Conference and practical exercise covering fundamentals of counterintelligence and provisions of AR 380-5.

Intelligence Training, 6245-I1. Integrated conference and practical exercise on purpose of intelligence training, training responsibilities of the S2, and supervision of intelligence training.

Estimate of the Situation, 6310-A4. Integrated conference and practical exercise covering form and use of commander's and operation estimates.

Operation Orders, 6315-A6. Practical exercise covering S3 records and reports, preparation of an operation order and overlay techniques.

Overlay Techniques, 6321-I3. Integrated conference and map exercise covering techniques of graphic representation of operation orders and use of situation maps, operation maps, operation overlays and planning maps.

Operation Orders, 6323-S4. Practical exercise covering the preparation of operation orders.

Tactical Psychological Warfare, 6346-B1. Integrated conference and practical exercise on role of psychological warfare in Infantry units, media available to Infantry units and defense against enemy propaganda.

***Combat Logistics,** 6330-A6-USAR (RDT). Practical exercise on battle group combat logistics including functions of S4, logistical organization and employment of supply and maintenance platoon. Applicable to nuclear and non-nuclear warfare. $.60.

New Developments in Tactics, Techniques and Material for Infantry and Supporting Arms. An instructional pamphlet covering the subject of new developments as they affect the combat soldier of tomorrow. This material outlines major developments in tactics, techniques, weapons, and equipment with major emphasis on recent trends and thinking of the fighting man.

Command and Staff Responsibilities—Nuclear Weapons Employment, 2406-USAR (RDT). Integrated conference and map exercise covering the basic concepts and doctrine in tactical nuclear weapons employment; to familiarize the student with command responsibilities and nuclear weapons considerations in command and staff planning.

Nuclear Weapons and Delivery Systems, 2409-USAR (RDT). Conference on nuclear weapons to include basic physics of nuclear detonation, types of weapons to include principles of operation, characteristics of

nuclear weapons delivery systems, and effects data in DA Pamphlet 39-1. This material is applicable to nuclear warfare.

Introduction to Nuclear Weapons Effects, 2410-S-USAR (RDT). Integrated conference and demonstration covering the types of bursts and physical effects of nuclear explosions.

Use of Unclassified Effects Data and the Weapons Selector System of Target Analysis, 2436-USAR (RDT). Conference and practical exercise on the data contained in DA Pamphlet 39-1 and its use; basis and use of the weapons selector, to include troop safety.

Tactical Employment of Army Aviation, 6105-A2. Integrated conference and practical exercise covering the organization, missions and tactical employment of the Infantry division aviation company with emphasis on aviation company elements supporting battle group operations in a nuclear war.

Introduction to Combat Intelligence, 6205-A2. Integrated conference and practical exercise covering the duties and functions of the battle group S2, organization of the Infantry division and battle group intelligence sections, the intelligence estimate, the use of intelligence, the intelligence cycle and the production of combat intelligence.

Processing of Information and Use of Intelligence, 6225-A6. Practical exercise on posting the situation map; conversion of information into usable intelligence; dissemination of timely information and intelligence to proper users; criteria which determine adequate dissemination; means and methods of dissemination; form, purpose and general contents of spot reports, shelling and bomb reports.

Intelligence Training, 6244-A1. Conference on the responsibilities and procedures employed in intelligence training. Problem stresses the building of intelligence consciousness and the importance of integrating intelligence training with individual and unit training.

Operations Order and Plans, 6320-A6. Practical exercise which encompasses and illustrates the techniques and procedures utilized in the preparation of defense orders, operation plans, warning orders, principles of issuance and receipt of oral orders and tactical situations involving a battle group.

Joint Air-Ground Operations, 6331-A2. Practical exercise covering the coordination of requests for close air support; the coordination and control of aircraft flying close air support; primary consideration in selecting targets for close air support; and the importance of time element in the processing of request for close air support.

Tactical Psychological Warfare, 6345-I1. Integrated conference and practical exercise discussing the role of psychological warfare as a supporting weapon within the Infantry unit; the media available to Infantry units; defense against enemy propaganda.

Command Post Organization and Displacement, 6435-I2 USAR (RDT). Integrated conference and practical exercise on command post organization and displacement and on interior arrangement of an assembly area. This material is applicable to nuclear and non-nuclear warfare.

Battle Group in Attack, 6664-I6. Map exercise on terrain which is relatively flat permitting free cross-country movement. The battle group moves on two axes, emphasizing the problems of control necessary under such situations and the requirement for adequate communication to effect this control.

New Training Literature & Films

The following manuals and training literature have recently been printed by Department of the Army and are available to instructors through normal supply channels:

Manuals

FM 7-40, Infantry and Airborne Division Battle Groups (revision).

Almost Forgot . . .

Merry Christmas and a Happy New Year

from the Staff of ***INFANTRY***

FM 21-5, Military Training (revision).

FM 23-43, 90mm, Full-Tracked, Self-Propelled Gun, M56 (new).

FM 57-21, Headquarters and Headquarters Company, Airborne Division Battle Group (new).

ATP 7-2, C1, Headquarters and Headquarters Company and Administrative Company, Infantry Division (change).

ATP 7-12, Headquarters and Headquarters Company, Infantry Division Battle Group (revision).

ATP 7-52, Headquarters and Headquarters Company, Infantry Brigade, Separate (new).

ATP 57-6, Headquarters and Headquarters Company, Airborne Division Command and Control Battalion; Airborne Division Administrative Company (new).

ATT 7-2-1, Security Squad and Security Platoon, Headquarters and Headquarters Company, Infantry Division (TOE 7-2T) (new).

ATT 7-17-1, Rifle Company, Infantry and Airborne Division Battle Groups (new).

ATT 7-25, Security Platoon, Headquarters and Headquarters Company, Infantry Brigade, Separate.

ATT 57-6, Security Platoon and Band, Headquarters and Headquarters Company, Airborne Division Command and Control Battalion (new).

ASubjSed 7-7, 81mm Mortar Squad Tactical Training (revision).

ASubjSed 7-8, 106mm Recoilless Rifle Squad Tactical Training (revision).

ASubjSed 7-15, 106mm Rifle, M40A1 (revision).

ASubjSed 7-17, 81mm Mortar, M29 (revision).

ASubjSed 7-18, Flame Warfare, Flame Thrower, M2A1 (revision).

ASubjSed 7-19, Sniperscope and Other Infrared Equipment (revision).

ASubjSed 7-30, Rifle Platoon Tactical Exercises (revision).

ASubjSed 7-51, Airborne Proficiency (revision).

ASubjSed 7-53, Drop Zone Assembly (revision).

ASubjSed 21-29, Hand and Rifle Grenades (revision).

ASubjSed 21-32, Carbine, Caliber .30, M1, M1A1, M2 and M3 (revision).

ASubjSed 21-36, Technique of Rifle Fire and Combat Firing (new).

ASubjSed 22-1, Basic Leadership Training, the Leader's Course (new).

Training Films

The following training films have been approved for release to requesting units:

AIF 7, Code of Conduct, Article III, To Resist, 8 minutes.

AIF 8, Code of Conduct, Article IV, Keep Faith, 9 minutes.

AIF 9, Code of Conduct, Article V, My responsibilities, 10 minutes.

AIF 10, Code of Conduct, Article VI, Stand Firm, 9 minutes.

TF 7-2456, The 3.5-inch Rocket Launcher M20A1B1 and Ammunition, 26 minutes.

TF 16-2746, Charity, 8 minutes.

TF 16-2791, Moral Responsibility of Safety, 6 minutes.

TF 20-2801, Land Mine Warfare, Part III, Laying the Minefield, 21 minutes.

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December—1944

A Time of Crisis and Courage

"There was [illegible] GI in the Ardennes [illegible] good [illegible], rather [illegible] GI who had known victory after victory [illegible] landing in [illegible] assumed he could [illegible] look [illegible] who accepted [illegible] [illegible] gun [illegible] the [illegible] since [illegible] few days of [illegible] support units [illegible] the [illegible] [illegible] [illegible] troops for trench foot [illegible] his machines were [illegible] and jammed.

"He was [illegible] hungry. He had just fought [illegible] fighting series of retreats where terror [illegible] behind the lines. He was tired. He was tired of defeat.

"But he had learned [illegible] lessons that [illegible] beginning to pay off. In [illegible] first major [illegible] battle ever fought by Americans he had learned that the wounded die fast in the cold. He had learned in a few weeks that cold is a living enemy [illegible] and must be fought . . . .

"He learned [illegible] big lessons too. That his tanks should be whitewashed to [illegible] with the enemy; that he should wear sheets like Halloween ghosts. But the greatest lesson was one learned from the enemy . . . to kill without remorse or pity . . . .

"When the battle was over . . . Wagon on the Rhine,' like a great bleeding [illegible], crawled back to the Fatherland. . . . Behind lay a [illegible] and guns—abandoned for [illegible] be minor repairs.

"The will of the German soldier [illegible] Each refugee of the Battle of the Bulge brought home a story of doom, of overwhelming Allied might and of the terrible weapon forged in the Ardennes: the American fighting man."

Battle—the Story of the Bulge by John Toland. Random House